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**THE FAUNA OF INDIA**  
**AND**  
**THE ADJACENT COUNTRIES**

Edited by  
**LT.-COL. R. B. SEYMOUR SEWELL**

**ORTHOPTERA**

**Vol. 2**  
**GRYLLOIDEA.**

by  
**L. CHOPARD**  
**PROFESSEUR HONORAIRE AU MUSÉUM NATIONAL D'HISTOIRE**  
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## FOREWORD

The present volume on Grylloidea by Prof. L. Chopard is the second on Orthoptera published in the Fauna of India (formerly Fauna of British India) series of monographs. The first volume on Orthoptera by Mr. W. F. Kirby dealt with the family Acridiidae and was published in May, 1914.

We have been fortunate in having Prof. Chopard as the author of the present volume on Grylloidea. He is an acknowledged authority on the subject and has carried out extensive researches on the taxonomy of oriental crickets. The manuscript submitted by Prof. Chopard was edited by Lt.-Col. R. B. S. Sewell, who unfortunately did not live to see the galley or page proofs of the volume owing to his sad demise in February, 1964, at the age of 83 years. Subsequently the editorial work in respect of this volume was carried out by my predecessor, Dr. M. L. Roonwal, and the undersigned. We were fortunate to have full co-operation from Prof. Chopard who went through the page proofs that were corrected earlier by us in the Zoological Survey of India. The Editor's Preface by Lt.-Col. R. B. S. Sewell has been slightly abridged by excluding some of the historical account in respect of this series, since it had been already given by him in the Editor's Preface to the volume on Lucanidae and Passalidae by G. J. Arrow, and also in the volume on Polychaeta by Prof. P. Fauvel.

We take this opportunity to record our indebtedness to the late Lt.-Col. R. B. S. Sewell, a former Director of the Zoological Survey of India, for having edited the volumes in this series from 1933 to 1964. Our grateful thanks are due to Prof. L. Chopard for his willing and valuable co-operation in bringing out this volume. Thanks are also due to the Baptist Mission Press for the skill and care with which the present job has been executed.

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Director



## EDITOR'S PREFACE

An account of the Orthoptera was begun in 1909 when the preparation of the volume in the *Fauna of British India* was undertaken by Mr. W. F. Kirby, F.L.S., F.E.S., and was sanctioned by the then Secretary of State for India. At first Mr. Kirby had wished to include in his volume an account of the Blattidae but some two months later he was persuaded by the then Editor Sir Arthur Shipley to surrender this family and a full volume on locusts and crickets was sanctioned and entrusted to Mr. Kirby and a half volume on Blattidae was authorized to Mr. R. Shelford.

Unfortunately Mr. Kirby did not live to complete the volume and at the time of his death a considerable amount of material still remained undetermined. It was decided to include in this volume only those species that had already been dealt with by Mr. Kirby and adding such species as had been described by previous authors but had not been included by Mr. Kirby in his notes. The task of preparing this somewhat restricted volume was undertaken by Mr. Charles O. Waterhouse who at the time was the Assistant Keeper of Zoology in the British Museum of Natural History. The text of the volume was essentially the work of Mr. Kirby under whose authorship this volume appeared in 1914.

The Gryllidae volume was assigned in 1937 to Dr. L. Chopard of the Department of Entomology of Museum National d'Histoire Naturelle, Paris. The outbreak of the Second World War inevitably caused interruption in the preparation of this volume, but in March, 1949, I was glad to hear from Dr. Chopard that he was prepared to resume his work on the volume on Grylloidea.

My thanks are due to Mlle. Boca, the artist, for the care she has taken in preparation of the beautiful illustrations. Also my thanks are due to Mr. R. J. Hughes, Librarian in the Department of Zoology, Cambridge University, for his assistance in checking references to publications in the Bibliography given at the end of the text. Finally, I must record my thanks to those members of the staff of the High Commission of India, and especially to Miss Wildman, now retired, who have all been most helpful and obliging.

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*Cambridge, England*

R. B. SEYMOUR SEWELL  
*Editor*

## AUTHOR'S PREFACE

It was in the year 1926 that I undertook a revision of Gryllids of the Indian region at the request of Lt.-Col. R. B. Seymour Sewell, the then Director of the Zoological Survey of India, and the work was begun with the material of the Indian Museum, Calcutta. A little later, I was able to supplement my work on the collections of the British Museum (Natural History), London, and the Colombo Museum, Ceylon. It was possible for me to complete the work on the material of Gryllids of Ceylon earlier. The volume on Gryllid fauna of Ceylon was published in 1936. The work on the Indian fauna was interrupted for several years owing to a series of events and it was only in 1944 that I took it up again with renewed interest at the advice of Lt.-Col. Sewell, who had, by that time, returned to Cambridge from where he continued to edit the volumes in the Fauna of India series. At the instance of Lt.-Col. Sewell the scope for the study of Gryllids was widened to include Burma and Malaya, besides Pakistan and Ceylon. Despite some resemblances with the fauna of Malaya, the purely Indian fauna (i.e. from India, Pakistan and Ceylon) is characterised chiefly by the abundance of *Gryllus* (*s.l.*) and related genera (*Gryllopsis*, *Callogryllus* and *Cophogryllus*), the *Loxoblemmus* and *Landreva* groups, and the Phalangopsidae, whereas Burma and Malaya are over-all rich in Pentacentridae, Itarinae (*Itara*, *Pseuditara*, *Gryllitara* and *Heterotrypus*), and *Calypotrypus* and *Madasomma* of the subfamily Podoscirtinae.

Although the crickets, which often present a wide distribution, do not constitute a very good biogeographical material, their study clearly reveals a few interesting points. It may be stated that no Palaearctic element has penetrated into India; at the most a few *Gryllus* may be cited, and chiefly *Gotvandia albipennis* n. sp. which belongs to a genus of which only one species was hitherto known from Persia. Besides, it is probable that some other forms of Palaearctic origin will be found in West Pakistan, the fauna of which is still insufficiently known. The species known from India are much more numerous, but their distribution in different districts is not yet fully and precisely known. It is evident that areas with such diverse climates as the central India, the Gangetic plains, the southern India and Assam show characteristic elements in their fauna. Studies on the distribution

and ecology of most species of Gryllids need to be undertaken. The existence of a great number of specialized types which are probably of Malayan origin can be easily pointed out. These are, for example, the genera *Coiblemmus*, *Stephoblemmus*, *Meristoblemmus* among the Loxoblemmites; *Paranemobius*, a Nemobiinae with nearly aquatic habits; *Sphecogryllus*, certain Phalangopsidae (*Luzaropsis*, *Paragryllodes*, *Kempiola*, *Phalangopsina*, *Aspidogryllus*, *Arachnomimus*), several of them being cavernicolous; and the genus *Homalogryllus* from Ceylon, a curious genus, highly specialized and quite isolated, belonging to the family Pentacentridae. The fauna of Burma, especially from Upper Burma, is still insufficiently known and it may not be surprising to find some infiltration of the Chinese fauna in that country. As to the Malay Peninsula, its fauna is much less endemic as compared to that of India; it is somewhat related to that of the Sunda Islands, and most of the groups comprising it seem to have their centre of dispersal in that region.

Two Indian species, viz. the mole cricket *Scapteriscus leptodactylus* Chopard and *Cacoplistes rogenhoferi* (Saussure), are particularly interesting. The *Scapteriscus* is one of the Grylloid genera most characteristic of the American fauna; about ten species of this genus are known from the American continent and only one is recorded from India. The mole crickets usually present a rather wide distribution and they may be easily transported with plants. The transportation of the Indian species in this manner is not impossible. However, this species has been reported from Bihar, Madras, Mysore and East Pakistan. The case of this species is not a singular one and it may well be compared with that of the Mantid genus *Chaeradodis* which comprises eight species in tropical America and two in South India and Ceylon. As regards *Cacoplistes* (family Cacoplistidae), it is one of the most curious Gryllids, with the facies of a coleopterous insect and a pronotum with strongly carinated margins; but the male possesses a normally constituted mirror which allows it to be placed near to *Homoeogryllus* among the Phalangopsidae. This extraordinary Gryllid must be scarce, since only a few specimens have been captured; it is very closely related to an Australian species.

The present study of the Indo-Malaysian fauna has been made possible owing to the examination of extensive collections belonging to most of the large museums, namely the Indian Museum, Calcutta; the British Museum (Natural History), London; the Colombo Museum, Ceylon; the Paris Museum, Paris; the Vienna Museum; the Geneva Museum,

Geneva; the Academy of Natural Sciences of Philadelphia and the U.S. National Museum, Washington. I have great pleasure in thanking the authorities of these museums and also Sir B. P. Uvarov and Dr. David D. Ragge of London; Dr. Hem Singh Pruthi and the late Dr. N. Annandale of Calcutta; G. M. Henry of Colombo; Dr. Max Beir of Vienna; A. B. Gurney and J. F. Gates of Washington; and my old friend James A. G. Rehn of Philadelphia. I wish to express my gratitude in particular to Lt.-Col. Seymour Sewell, Dr. M. L. Roonwal and Dr. A. P. Kapur for kindly going through my manuscript and making it ready for publication.

*Paris*

L. CHOPARD

26.10.1964

## ABBREVIATIONS

The following abbreviations have been used in the text to denote the names of museums and other institutions where the specimens referred to by the author are present:

B.M.	British Museum (Natural History), London.
Ber. M.	Institut für Spezielle Zoologie und Zoologisches Museum der Humboldt-Universität, Berlin (GDR).
C.I.E.	Commonwealth Institute of Entomology, London.
Col. M.	National Museum of Ceylon, Colombo.
F.R.I.	Forest Research Institute, Dehra Dun (India).
G.M.	Museo Civico di Storia Naturale, Geneva (Italy).
Go. M.	Genoa Museum, Genoa.
I.M.	Indian Museum (Zoological Survey of India), Calcutta.
L.M.	Rijksmuseum voor de Geschiedenis der Natuurwetenschappen, Leyden.
M.M.	Museo Nacional de Ciencias Naturales (Natural Science Museum), Madrid.
Mas. M.	Government Museum, Madras (India).
P.M.	Museum National d'Histoire Naturelle, Paris.
Phil. M.	The Academy of Natural Sciences of Philadelphia, Philadelphia.
R.M.	National Museum (Raffles Museum), Singapore.
S.M.	Naturhistoriska Riksmuseet (Swedish Museum of Natural History), Stockholm.
Sel. M.	National Museum of Malaya (Muzium Negara), Kuala Lumpur.
U.S.N.M.	United States National Museum, Washington.
V.M.	Naturhistorisches Museum (Natural History Museum), Vienna.

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195.	<i>testacea</i> n. sp.		218
196.	<i>vicina</i> n. sp.		219
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197.	<i>pulchellus</i> Sauss.		221
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199.	<i>annulicornis</i> Chop.		224
200.	<i>punctulatus</i> Chop.		225
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<b>8.</b>	<b>Fam. Pteroplistidae</b>		230
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206.	<i>perakensis</i> n. sp.		232
207.	<i>similis</i> n. sp.		233
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	Chop.		235
209.	<i>ferruginea</i> (Walk.)		237
210.	<i>confusa</i> n. sp.		239
211.	<i>henryi</i> Chop.		239
		Gen. <i>Larandopsis</i>	
		Chop.	240
212.	<i>choprai</i> Chop.		241
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	Guérin		241
213.	<i>cincticornis</i> (Walk.)		242
214.	<i>longicornis</i> (Walk.)		244
215.	<i>japonicus</i> (Haan)		244
	Gen. <i>Paragryllodes</i>		
	Karny		245
216.	<i>gravelyi</i> (Chop.)		245
217.	<i>ceylonicus</i> (Chop.)		246
	Gen. <i>Parendacustes</i>		
	Chop.		248
218.	<i>picticeps</i> (Walk.)		248
219.	<i>pendleburyi</i> n. sp.		250
220.	<i>latifrons</i> n. sp.		251
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223.	<i>dubia</i> (Bol.)		255
224.	<i>palpata</i> n. sp.		256
	Gen. <i>Arachnomimus</i>		
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225.	<i>nietneri</i> (Sauss.)		257
226.	<i>brevipalpis</i> n. sp.		259
227.	<i>annulicornis</i> Chop.		259
228.	<i>bicolor</i> Chop.		261
229.	<i>lepidus</i> n. sp.		261
230.	<i>microphthalmus</i>		
	Chop.		262
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241. <i>longipennis</i> (Serv.)	278	273. <i>transversus</i> (Walk.)	310
242. <i>maculipes</i> Chop.	278	274. <i>carmichaeli</i> (Chop.)	310
243. <i>rufonotata</i> Chop.	279	Gen. <i>Cardiodactylus</i>	
244. <i>henryi</i> Chop.	280	Sauss.	311
245. <i>longealata</i> Chop.	281	275. <i>novae-guineae</i> (Haan)	312
246. <i>venustula</i> (Sauss.)	282	276. <i>praecipuus</i> (Walk.)	312
247. <i>nigriithorax</i> Chop.	283	Gen. <i>Nisitra</i> Walk.	313
Gen. <i>Paratrigonidium</i>		277. <i>hyalina</i> (Sauss.)	313
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248. <i>nitidum</i> Br.	285	Gen. <i>Itara</i> Walk.	314
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251. <i>unifasciatum</i> Chop.	286	Gen. <i>Pseuditara</i>	
252. <i>fuscocinctum</i> Chop.	287	n. gen.	317
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253. <i>pubescens</i> (Chop.)	287	Sauss.	320
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<i>pha</i> Chop.	288	282. <i>vicinus</i> Chop.	322
254. <i>fuscifrons</i> Chop.	288	283. <i>elegans</i> Chop.	323
Gen. <i>Amusurgus</i> Br.	289	284. <i>gracilis</i> n. sp.	324
255. <i>oedemeroides</i> (Walk.)	290	Gen. <i>Gryllitara</i> Chop.	325
256. <i>lateralis</i> n. sp.	291	285. <i>pendleburyi</i> Chop.	325
257. <i>unicolor</i> (Chop.)	291	Subfamily PODOSCIR-	
258. <i>karnyi</i> (Chop.)	292	TINAE	326
259. <i>speculifer</i> Chop.	293	Gen. <i>Calypotrypus</i>	
260. <i>ornatipes</i> (Chop.)	294	Sauss.	327
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261. <i>pallipes</i> Stål	295	287. <i>lobatus</i> n. sp.	331
262. <i>bicolor</i> (Stål)	297	288. <i>pallidus</i> (Walk.)	332
263. <i>vittaticollis</i> (Stål)	297	289. <i>bipunctatus</i> n. sp.	332
264. <i>pallidinervis</i> Chop.	297	290. <i>crumbi</i> n. sp.	333
265. <i>gigas</i> (Bol.)	298	291. <i>bispinosus</i> n. sp.	334
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296. <i>maindroni</i> (Chop.)	339	Bol.	374
297. <i>ornatus</i> n. sp.	340	327. <i>abbreviatus</i> Bol.	375
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301. <i>greeni</i> Chop.	346	331. <i>cinereus</i> (Haan)	382
302. <i>albonotata</i> Chop.	347	332. <i>bipunctatus</i> n. sp.	383
303. <i>similis</i> n. sp.	348	333. <i>griseovariegatus</i> n. sp.	385
304. <i>albomaculata</i>		334. <i>griseipennis</i> n. sp.	386
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305. <i>obscuripennis</i> n. sp.	350	336. <i>fuscirostris</i> n. sp.	388
306. <i>melanonotum</i> n. sp.	352	337. <i>angustifrons</i> (Chop.)	389
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315. <i>ventralis</i> Walk.	361	344. <i>necydaloides</i> (Walk.)	397
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319. <i>willemsei</i> Chop.	365	347. <i>malayanus</i> n. sp.	400
Gen. <i>Mnesibulus</i> Stål	367	348. <i>cephalotes</i> (Sauss.)	402
320. <i>bicolor</i> (Haan)	368	349. <i>quadripunctatus</i> Bol.	403
321. <i>brunnerianus</i> (Sauss.)	369	350. <i>brevipennis</i> n. sp.	403
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323. <i>andrewesi</i> Chop.	371		
324. <i>fuscipennis</i> Chop.	371		

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Gen. <i>Landreva</i>		Gen. <i>Ectatoderus</i>	
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# ORTHOPTERA

## GRYLLOIDEA

### INTRODUCTION

The Grylloidea constitute among the Orthoptera an important section of the suborder Ensifera. This suborder is essentially characterized by long, slender antennae, composed of a great number of articles, by a large ovipositor, usually extending far beyond the abdominal extremity, by the auditory organs placed in the anterior tibiae and by a large part of the male elytron transformed into a stridulating organ.

The Ensifera include four superfamilies, *viz.*, Gryllacridoidea, Prophalangopsidea, Tettigonioidea and Grylloidea.

### GENERAL CHARACTERS OF THE GRYLLOIDEA

*Morphology.*—General shape and size very variable. Head (fig. 1) usually rounded; superior part composed of the occiput and the vertex, often more or less prolonged between the antennae in a frontal rostrum; face comprising the forehead, the clypeus and the labrum. Maxillary palpi composed of five joints. Ocelli almost always present.

Pronotum presenting a superior part, flat or feebly convex, the disk and the lateral lobes which are separated from the disk by a more or less strongly marked humeral edge. The shape of the lateral lobes is rather variable and is often used as a systematic character.

The legs are of variable length but usually rather short; the tarsi are always composed of three joints, the first of which is the metatarsus. On the posterior legs, this metatarsus is often long and armed, on the superior margins, with more or less numerous spines. The shape of the second joint of the tarsi is particularly important as a part of the classification of the Grylloidea has been based on this character; this article may be small and compressed or depressed, almost cordiform in shape. Tibiae of the two first pairs of legs more or less pubescent but never provided with spines on the margins; they are armed at apex with 3 or 4 apical spurs. The posterior legs are conformed for jumping, the femora being usually strongly dilated at base. The armature of the posterior tibiae is of utmost importance for the classification;

the superior margins are armed with spines which are very variable in size and number; between these spines, the margins may be smooth or furnished with small denticles. The apex of the posterior tibiae are usually armed with 3 spurs on each side; the shape and disposition of these spurs are very important; in the Trigonidiidae and a few other forms, one of them is wanting on the internal face.

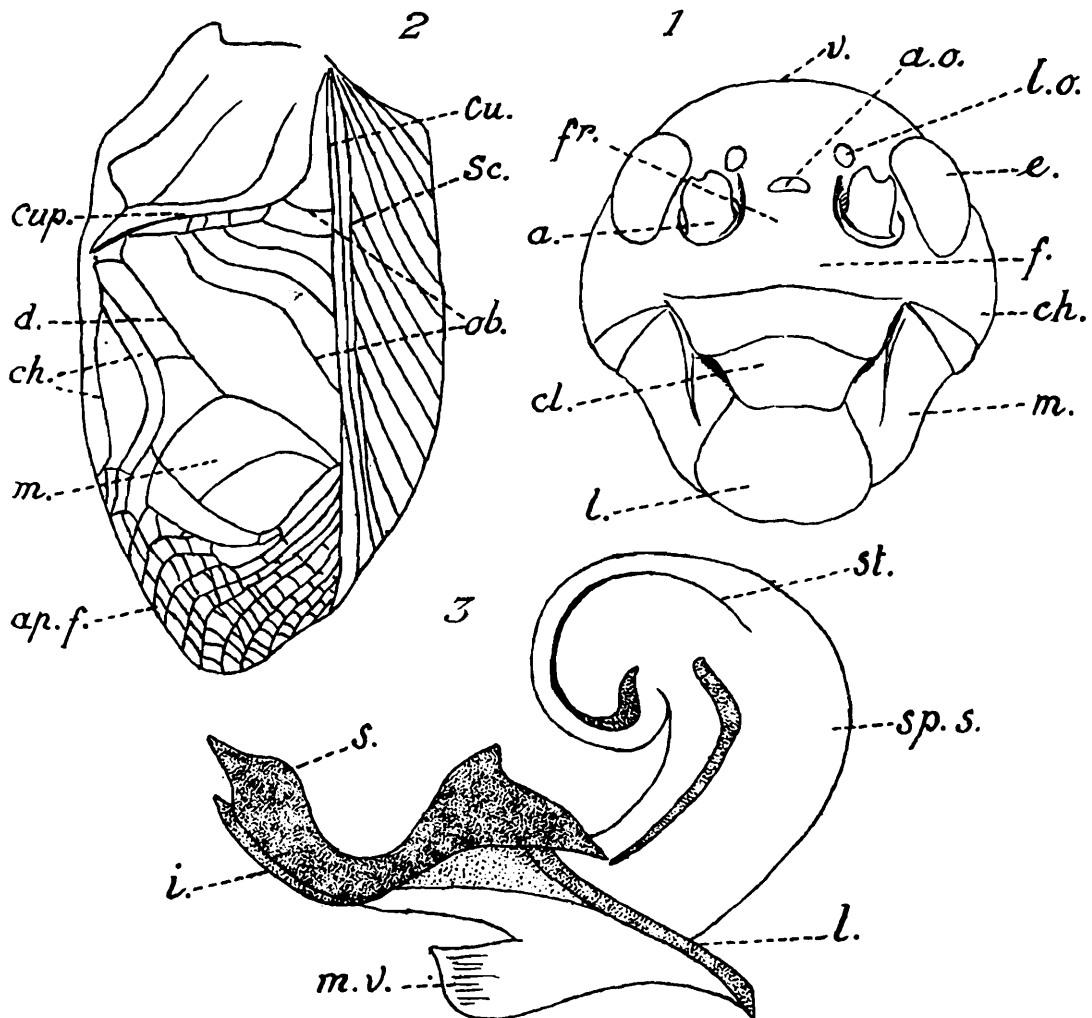


FIG. 1. Head of a *Gryllus*: a.o., anterior ocellus; l.o., lateral ocellus; a., base of antennae; e., eye; f., forehead; fr., frontal rostrum; v., vertex; ch., cheek; m., mandible; cl., clypeus; l., labrum.

FIG. 2. Male elytron of a *Gryllus* (*G. bimaculatus*): Sc., subcostal vein; Cu., cubital vein; Cup., posterior branch of the cubital; ob., oblique veins; ch., chords; m., mirror; ap.f., apical field; d., diagonal vein.

FIG. 3. External genitalia of a *Gryllus* (*G. testaceus*), lateral view: s., superior part of pseudepiphallus; i., inferior part of same; m.v., membranaceous valves; l., lateral rod; sp.s., spermatophore sack; st., style of the spermatophore sack.

Abdomen cylindrical; last tergite bearing long, non-articulated cerci; these cerci are provided with an abundant

pubescence formed of three kinds of hairs; very short hairs, long bristles and short, swollen hairs which are characteristic of the Grylloids; the function of these special hairs is probably an acoustic one. The copulatory organ of the male (figs. 3, 4) is constituted by membranous valves above which is found the pseudepiphallus, a sclerified piece extremely variable in its shape; this organ often provides very good specific and even generic characters. In the female sex the ovipositor is composed of four valves only, the internal valves remaining rudimentary in the course of the post-embryonic development. The shape of the ovipositor is usually that of a stem ending in more or less denticulated apical valves, the variations of which are used in the classification. In a few cases the ovipositor is reduced so far as to become almost without function; it is even completely absent in the Gryllotalpidae.

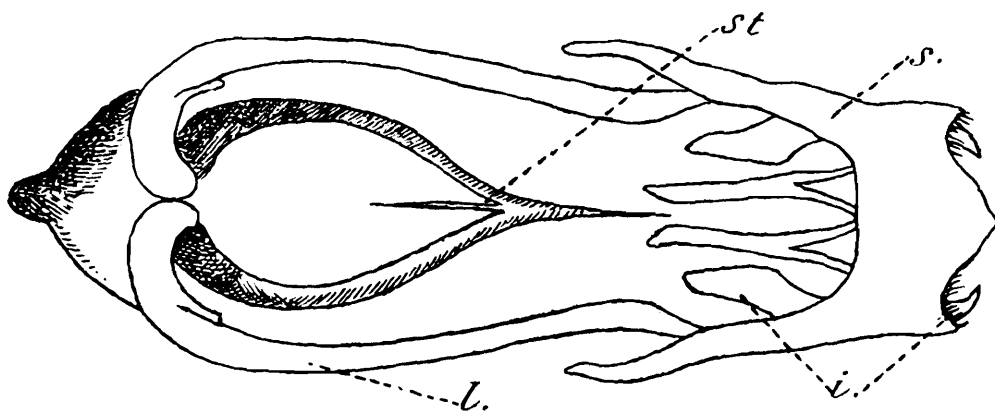
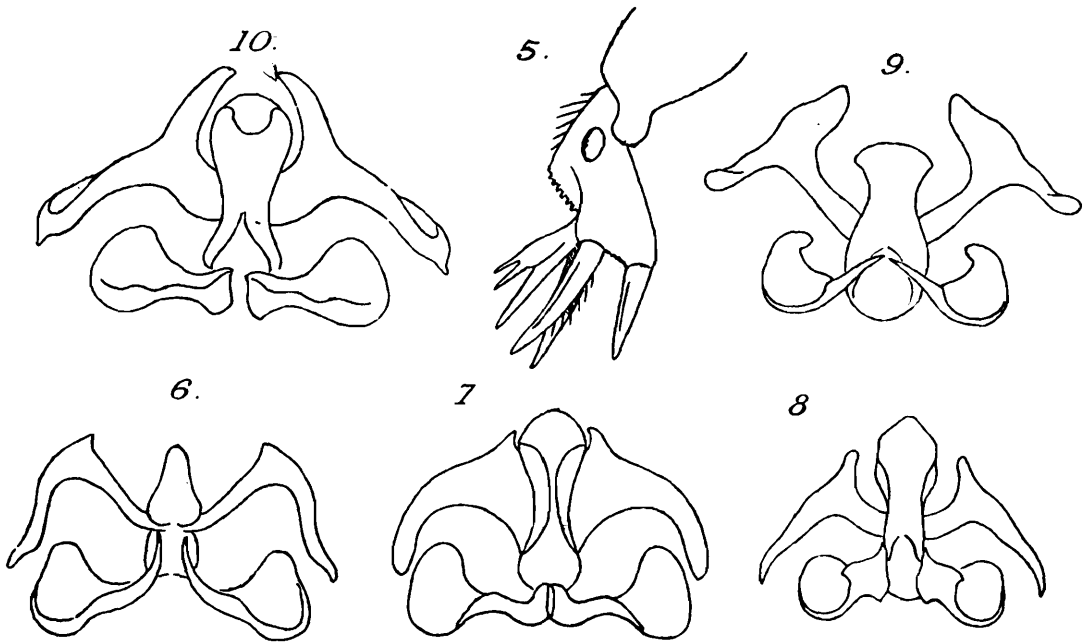


FIG. 4. External genitalia of a *Gryllus* (*G. domesticus*) seen from above: *s.*, superior part of pseudepiphallus; *i.*, inferior part; *l.*, lateral rod; *st.*, style of the spermatophore sack.

The elytra and wings are normally well developed, although a rather large number of species present reduced or completely absent elytra and wings, sometimes in both sexes but more often in the female only. The elytral venation is normally very different in both sexes. Whereas in the female it is plain, formed of oblique, rather regular veins, separated by veinlets which form numerous small areolae, in the male (fig. 2) all the dorsal part or field is converted into a stridulatory organ. This organ is of great importance for the classification. It is typically composed of: (1) a stridulating vein which runs across the elytron about its anterior third (posterior cubitus); (2) a large oval or rhomboidal cell, situated about the middle of the elytron (*mirror*); (3) an oblique vein

which joins the anterior angle of the mirror to the extremity of the archet (*diagonal vein*); (4) several veins, variable in number, uniting the archet to the cubital vein, on (figs. 5–10) the elytral edge (*oblique veins*); (5) 3 more or less curved veins, between the diagonal vein and the internal margin of the elytron (*chords*); (6) the apical field behind the mirror down to the apex. The part of the elytron which is not included in the stridulating organ is folded along the body, forming the lateral field; the principal vein of this field is the subcostal (*Sc.*) which can bear a variable number of branches. This rather complex ensemble is extremely variable and can suffer reductions leading to the abolition of any difference with the



FIGS. 5 to 10. 5. anterior leg of *Scapteriscus leptodactylus*, internal face. 6. genitalia of *Gryllotalpa fossor*. 7. *id.*, *G. fusca*. 8. *id.*, *G. fulvipes*. 9. *id.*, *G. ornata*. 10. *id.*, *G. hirsuta*.

female elytron. It is worthy of notice that, in the species where the male has thus lost the stridulating faculty, the auditory organs are reduced and the tympana or drums of the anterior tibiae almost always absent.

*Ethology.*—The habits of the Grylloids are as variable as their general shape. Many live on the ground and often burrow a hole; many others are found on different plants. Real subterranean species are found among them as well as cavernicolous species. Although some Gryllids are found in very dry conditions, most of the species seek moisture and some species, living on the banks of waters, can be considered as almost aquatic.

The food of Grylloids consists of all kinds of animal and vegetable matters; they very seldom eat living insects but willingly consume dead ones. The copulation takes place with the intervention of a rather small spermatophore.

According to the groups the eggs are laid in the ground or in the stem of herbaceous plants.

*Classification.*—The classification of the Grylloids has been established by Henri de Saussure in a remarkable monograph which was published in Geneva in the years 1877-1878. In this masterly work, the author points out the most important morphological characters and he establishes the large divisions of the group. Although a great number of species have been described since the publication of Saussure's work, it can be said that this work remains the basis of the modern classification of the Grylloidea.

*Key to the families*

- |   |  |                                 |    |
|---|--|---------------------------------|----|
| 1 | Anterior legs short, presenting a special conformation for digging.  | <i>Gryllotalpidae</i> , p. 6    | 2  |
|   | Anterior legs normally formed. . . . .   |                                 |    |
| 2 | Body short, oval; antennae and cerci relatively short; femora massive, scarcely one and a half times as long as wide; myrmecophilous insects. . . . .            | <i>Myrmecophilidae</i> , p. 180 |    |
|   | Body not especially short; antennae long, setaceous; cerci long; posterior femora not so massive. . . . .  |                                 | 3  |
| 3 | Second segment of tarsi compressed, minute. . . . .  |                                 | 4  |
|   | Second segment of tarsi depressed. . . . .   |                                 | 11 |
| 4 | Posterior tibiae with serrulated margins, without spines (except in the genus <i>Acanthoplistus</i> ). . . . .   |                                 | 5  |
|   | Posterior tibiae armed with spines on the superior margins. . . . .  |                                 | 8  |
| 5 | Facial shield subquadrate, inserted between the antennal sockets; frontal rostrum wide. . . . .  |                                 | 6  |
|   | Facial shield transverse; frontal rostrum variable but usually not so wide . . . . .   |                                 | 7  |
| 6 | Facial shield strongly transverse; small species with body covered with scales; apterous or presenting short, membranaceous elytra in the male sex only. . . . . | <i>Mogoplistidae</i> , p. 185   |    |
|   | Facial shield almost flat; body feebly pubescent or glabrous, without scales; males and females with fully developed elytra. . . . .                             | <i>Scleropteridae</i> , p. 206  |    |
| 7 | Edges of pronotum carinated. Posterior femora very slender. Ovipositor of female long, slender. . . . .  | <i>Cacoplistidae</i> , p. 227   |    |



- Edges of pronotum rounded. Posterior femora less slender. Ovipositor of female wide, compressed. . . . . *Pteroplistidae*, p. 230
- 8 Posterior tibiae without denticles between the spines. . . . . 9  
Posterior tibiae serrulated at base and between the spines.. . . . 10
- 9 Head globular; antennae inserted above the middle of the face. . . . . *Gryllidae*, p. 12  
Head flattened in front; antennae inserted beneath the middle of the face . . . . . *Pentacentridae*, p. 213
- 10 Head lengthened, horizontal. Slender insects with feebly swollen posterior femora; elytra transparent. .. . . . *Oecanthidae*, p. 266  
Head short, vertical. More robust insects with usually long legs but posterior femora strongly swollen at base. Elytra, when present, coloured . . . . . *Phalangopsidae*, p. 234
- 11 Posterior tibiae non-serrulated, armed with three spines on each margin. Very small, delicate insects. .. . . . *Trigonidiidae*, p. 273  
Posterior tibiae serrulated between the spines. . . . . *Eneopteridae*, p. 306

## 1. Family GRYLLOTALPIDAE

The Gryllotalpidae, known by their trivial name as mole-cricket, differ from the other Grylloidea in many features related to their special mode of living. The body is elongate, the head is small, conical; ocelli two only in number. The shape of the pronotum is very peculiar; it is convex, forming a strong dorsal shield with lateral lobes strongly bent towards the median line beneath. The anterior legs also present a very characteristic conformation; the coxa is very short and stout; the femur is like a thick, somewhat curved plate; the tibia is very short, triangular; its apical spurs are transformed into strong, cutting dactyli. The stridulating part of the male elytra is also quite different from the normal type in Gryllids; there is no mirror and the disk of the elytron is occupied by a large triangular cell, delimited by the archet, the diagonal vein and the only oblique vein; apical field considerably reduced. In the female the ovipositor is completely aborted.

The Gryllotalpids lead a subterranean life; they dig with rapidity galleries in movable, moist soils. They feed on worms and small insects but often occasion rather important damage to cultures by cutting the roots just as moles do. The eggs are laid in a nest formed of an earthy sphere as big as a hen's egg. The female remains during a certain time

near the newly hatched young and it seems that she takes care of them.

*Key to the genera of GRYLLOTALPIDAE*

Anterior tibiae armed with two dactyls (fig. 5).	<i>Scapteriscus</i> Scudd., p. 7
Anterior tibiae armed with four dactyls.	<i>Gryllotalpa</i> Latr., p. 8

Genus SCAPTERISCUS Scudder

1868. *Scapteriscus* Scudder, *Proc. Boston Soc. nat. Hist.*, **11**, 385.

*Type*.—*Gryllotalpa oxydactyla* Perty.

*Range*.—This genus is a typical American genus but one species has been described from Bengal.

1. *Scapteriscus leptodactylus* Chopard

(Fig. 5)

1928. *Scapteriscus leptodactylus* Chopard, *Rec. Ind. Mus.*, **30**, 1, figs. 1, 2.

*Size* medium, rather slender. *Head* very narrow; ocelli large, separated in front by a space scarcely equal to their own length. *Pronotum* strongly narrowing anteriorly, regularly ovoidal posteriorly; anterior margin markedly concave; disk yellowish with a big brown spot occupying the whole of the median part.

*Legs*: Process of the anterior trochanter very long, narrow, with parallel margins; the inferior one provided with bristles all along its length. Anterior tibiae presenting an oval, completely uncovered drum; claws long and widely apart; claws of the tarsi also very long and narrow. Posterior tarsi with the third joint very strongly enlarged, compressed, with subequal claws.

*Elytra* extending to the apex of the 6th abdominal tergite, light brown with close, very regularly parallel veins (♀); Sc. bearing 4 branches. Wings very long. Male unknown.

*Length* of body 23·5–27 mm.; pronot. 7–8 mm.; elytra 10·5 mm.

*Range*.—INDIA: Bihar: Ranchi (coll. Pantel, P.M.). Mysore: Shimoga; Tunga River (Phil. M.). Madras: Coimbatore (Phil. M.). EAST PAKISTAN: Damukdia (type in I.M.).

Genus *GRYLLOTALPA* Latreille

1802. *Gryllotalpa* Latreille, *Hist. nat. Crust. Ins.*, **111**, 275.

*Type*.—*Gryllus* (*Acheta*) *gryllotalpa* L.

*Range*.—Europe, Asia, Africa, Australia, New Zealand.

*Key to the species of GRYLLOTALPA*

- |   |   |                               |   |
|---|---|-------------------------------|---|
| 1 | Very large species (40–50 mm.).   | <i>hirsuta</i> Burm., p. 12   |   |
|   | Species of medium size (20–30 mm.).   |                               | 2 |
| 2 | Body of a velvet blackish colour with rufous legs.  | <i>fulvipes</i> Sauss., p. 10 |   |
|   | Colour uniformly of a more or less dark brown.  |                               | 3 |
| 3 | Shape very narrow; dark brown; ♀, veins of elytra very close, parallel, not at all deviated at base; ♂, mirror very narrow. | <i>ornata</i> Walk., p. 10    |   |
|   | Shape more stout; ♀, veins of elytra more distant, curved at base; mirror of male wider.                                    |                               | 4 |
| 4 | Colour dark brown; ♀, veins of elytra bluntly deviated at base, parallel.   | <i>fusca</i> Chop., p. 9      |   |
|   | Colouration not so dark; ♀, veins of elytra somewhat diverging and simply curved at base.                                   | <i>fossor</i> Scudd., p. 8    |   |

2. *Gryllotalpa fossor* Scudder

(Fig. 6)

1869. *Gryllotalpa fossor* Scudder, *Mem. Peabody Ac. Sc.*, **1**, 21, pl. 1, figs. 11, 28, 29.
1924. *Gryllotalpa africana* Chopard, *Rec. Ind. Mus.*, **26**, 181. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 125. Chopard, 1933, *Rev. Suisse Zool.*, **40**, 161. Chopard, 1936, *Ceylon J. Sc.*, (B) **20**, 19. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 542.
1931. *Gryllotalpa formosana* Chopard (*non* Shiraki), *Bull. Raffles Mus.*, No. 6, 125.

*Colouration* rufous-brown. *Head* darker. *Ocelli* oval, usually large but of variable size. *Pronotum* well rounded behind; anterior margin feebly concave; inferior margin of the lateral lobes rather strongly sinuated. *Legs*: Anterior femora short and stout, with feebly sinuated inferior margin; tibial dactyls wide and rather short, touching at base. Posterior tibiae with internal margin armed with 4 spines; posterior tarsi long and rather slender.

♂: *Elytra*: Discoidal cell of elytra narrow, twice as long as wide at base; a second cell between the diagonal vein and the first chord almost as large as the discoidal. Wings usually

very long but in a variety (possibly *formosana* Shiraki) scarcely longer than the elytra.

♀: *Elytra* of rather variable length; veins of the dorsal field rather distant and curved at base, somewhat converging towards the apex. Wings as in the male.

*Length* of body 25–35 mm.; pronot. 7.5–10 mm.; elytra 8–12.5 mm.

The study of the genitalia (fig. 6) shows that the true *africana* does not exist in India and probably not in the whole of Asia. The shape of this organ is rather peculiar in the Gryllotalpidae; it consists of a rather small pseudepiphallus supported by two curved branches, and two inferior hooks. In *fossor*, the pseudepiphallus is narrowly cordiform and the hooks rather short, acute. It seems that all the specimens from India which I have reported as *africana* must be considered as *fossor*.

*Range*.—INDIA: Kashmir: N.W. Himalayas; Gilgit (I.M.). E. Punjab: Kangra Dist. United Provinces (Uttar Pradesh): Allahabad; Bareilly; Dehra Dun (I.M.); Bajaura (P.M.). Bihar: Muzaffarpur; Patna (I.M.). West Bengal: Calcutta (I.M.). Assam: Shillong, 5,000 ft. (I.M.); Ledo (Phil. M.). Orissa: Dhamra; Barkuda Island in the Chilka Lake (I.M.). Madras: Pondicherry; Madura; Shambaganur (P.M.); Coimbatore (Phil. M.). Mysore: Shimoga; Nedungadu (P.M.). Malabar (Kerala) (P.M.). Bhutan: Maria Basti (P.M.). WEST PAKISTAN: Lyallpur (B.M.). NEPAL: Nagoskote (I.M.). CEYLON: Colombo; Kandy (Col. M., P.M.); numerous localities (Sandrasagara). BURMA: Rangoon (I.M.); Shingbuiyang (Phil. M.). MALAYA: Kuala Lumpur; Kuala Tahan; Kampong Gapah. Singapore (Sel. M.).

A very common species which is found everywhere in tropical Asia and in Africa. According to Annandale, it is almost amphibious in habit. It lives in very damp earth or sand at the edge of water. Banerjee and Chatterjee observe that it has caused serious damage to potato crops in West Bengal by tunnelling through the tubers and feeding on them (*Ind. J. Ent.*, 17, 1955, p. 214).

### 3. *Gryllotalpa fusca* Chopard

(Fig. 7)

1930. *Gryllotalpa fusca* Chopard, *Sarawak Mus. J.*, 4, No. 12, 4, pl. 1, figs. 1, 2. Chopard, 1940, *Ent. m. Mag.*, 76, 192.  
1931. *Gryllotalpa australis* Chopard (*non* Erichson), *Bull. Raffles Mus.*, No. 6, 125.

*Type*.—In Sarawak Museum.

Very similar to the preceding in size and general shape, but much darker. The female is easily recognized by the *elytral venation*, the veins being closer, straight, parallel and rather strongly bent at base. The *elytral venation* of the male is scarcely different from that of *fossor* but the genitalia are quite different; pseudepiphallus elongate with concave margins and wide branches; the inferior hooks are very short (fig. 7).

*Range*.—MALAY PENINSULA: Perak: Maxwell's Hill. Selangor: Bukit Kutu. Pahang: Semangko Pass (Sel. M., P.M.). BORNEO. SARAWAK (type). SUMATRA: Mentawai Islands.

#### 4. *Gryllotalpa fulvipes* Saussure

(Fig. 8)

1877. *Gryllotalpa fulvipes* Saussure, *Mém. Soc. Genève*, **25**, 35.

1929. *Gryllotalpa nigripennis* Chopard, *J. F. M. St. Mus.*, **14**, 368, figs. 1-3.

Smaller than the preceding and differing from it by its *colouration* which is almost black with rufous legs. In the male the *elytral venation* differs by the wider and shorter discoidal cell; the wings seem always very short in the male, much longer in the female. Dactyls of the anterior tibiae long and narrow, chiefly the two superior ones. *Genitalia* closely resembling that of the preceding (fig. 8).

*Length* of body 21 mm.; pronot. 8 mm.; elytra ♂ 8 mm., ♀ 11.5 mm.

This species has been very shortly described by Saussure. Although I have not seen the type, my friend Professor R. Ebner gave me information which allows me to conclude that this species is the same as the *Gryllotalpa* which I described from a cave of Selangor. As nothing is known of the conditions of capture of Saussure's type, it is possible that the species is not strictly cavernicolous.

*Range*.—MALAYA: Selangor: Batu Caves, 600-1,200 ft. from entrance under stones in guano (type of *nigripennis* in Sel. M.); Penang Hill (B.M.). Singapore (type of *fulvipes* in G.M.).

#### 5. *Gryllotalpa ornata* Walker

(Figs. 9, 11)

1869. *Gryllotalpa ornata* Walker, *Cat. Derm. Salt. Br. M.*, **1**, 5.

Rather small; slender. *Colouration* dark brown. Ocelli very small, round. *Pronotum* with regularly convex sides,

feebly widening backwards in the male. *Legs* coloured a little lighter than the body. Anterior femora with feebly sinuated inferior margin; tibial dactyls short and wide. Posterior tibiae armed on the internal margin with 4 rather long and slender spines. Elytra long, narrow, extending to the apex of the 6th abdominal tergite. Wings very long.

♂ : *Elytra* : Discoidal cell twice as long as wide, with straight margins; there is no adjacent cell; *Sc.* bearing 6 branches. Pseudepiphallus rather short with anterior margin convex, lateral margins sinuated; inferior hooks short but acute (fig. 9).

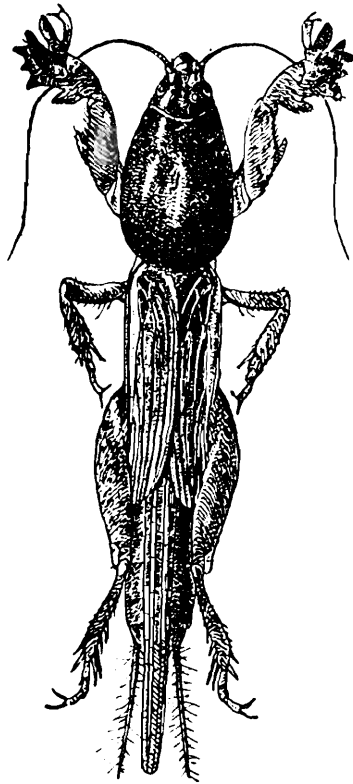


FIG. 11. *Gryllotalpa ornata* Walk., ♀ ( $\times 2.0$ ).

♀ : *Elytral veins* close, parallel, quite straight from the base; *Sc.* as in the male.

*Length* of body 20–25 mm.; pronot. 6.5–9 mm.; elytra 9.5–11.5 mm.

This species is easily recognized by its small size and above all by its very slender shape. It seems localized in the mountainous regions of North India.

*Range*.—INDIA: Uttar Pradesh: Almora, 5,500 ft. West Bengal: Darjeeling (type in B.M.); Kurseong, 5,000 ft.; Kalimpong; Rungneete Tea Estate, 4,500–5,000 ft. (P.M.).

Murshidabad (P.M.). Sikkim : Rangium, 6,000 ft. Bhutan : Maria Basti (P.M.).

## 6. *Gryllotalpa hirsuta* Burmeister

(Fig. 10)

1838. *Gryllotalpa hirsuta* Burmeister, *Handb. Ent.*, **11**, 739.  
 Saussure, 1877, *Mém. Soc. Genève*, **25**, 34, pl. 11 (I), figs. 12, 13. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 125.  
 1842. *Gryllus* (*Gryllotalpa*) *longipennis* Haan, *Temminck, Verhandl., Orth.*, 237.  
 1869. *Gryllotalpa grandis* Walker, *Cat. Derm. Salt. Br. M.*, 5.  
 1877. *Gryllotalpa longipennis* Saussure, *Mém. Soc. Genève*, **25**, 29.  
 1878. *Gryllotalpa siamensis* Giebel, *Ztschr. Ges. Naturwiss.*, **35**, 48.  
 1931. *Gryllotalpa hirsuta longipennis* Chopard, *Bull. Raffles Mus.*, No. 6, 125.

A very large species. *Colouration* brown or dark brown. *Legs* : Anterior femora with feebly sinuated inferior margin; process of the trochanter long, feebly incurved, acute at apex. Internal margin of the posterior tibiae armed with 3 slender spines, two in the middle, the third at apex; metatarsi armed at apex with two strong, curved spines.

♂ : *Elytra* extending to the apex of 4th abdominal tergite, rounded; cubital vein strongly sinuated; discoidal cell long, oblique, with curved margins; apical field very short; lateral field darker than the dorsal field; *Sc.* bearing 12 branches. Wings very short. Genitalia relatively small; pseudephallus rounded with large branches; inferior hooks very small, blunt at apex (fig. 10). ♀ : *Elytra* extending to the apex of 5th or 6th abdominal tergite, with veins curved at base only, then straight and parallel. Wings very long.

All the males of this species which I have seen are microp-  
 terous and the females macropterous. This fact is not ex-  
 ceptional among the Gryllotalpidae, but the macropterous  
 condition may exist in the male.

*Length* of body ♂ 38–45 mm., ♀ 40–53 mm.; pronot. ♂ 12–16 mm., ♀ 14–18 mm.; elytra ♂ 11–14 mm., ♀ 21–24 mm.

*Range*.—MALAYA: Perak: Gunong Kladang (Sel. M.).  
 Selangor: Bukit Kutu; Ginting Simpah. Singapore (Sel. M.).  
 SUMATRA. JAVA. BORNEO.

## 2. Family GRYLLIDAE

This family represents the most classical type of cricket, characterized by the big, globular head, the tarsi compressed, the posterior tibiae armed with spines but never serrulated

between these spines. It is composed of a great number of genera which can be distributed in two subfamilies:

Spines of the posterior tibiae immovable, without hairs. . . . .	<i>Gryllinae</i>
Spines of the posterior tibiae movable, pubescent. . . . .	<i>Nemobiinae</i>

## Subfamily GRYLLINAE

The *Gryllinae* are large or rather large insects. They live on the ground and often burrow a hole in which they spend a large part of their life; the eggs are laid in the ground.

### Key to the genera of subfamily GRYLLINAE

- 1 Posterior tibiae serrulated at base, proximal to the insertion of the spines. . . . . 2  
Posterior tibiae non-serrulated at base 6
- 2 Anterior tibiae non-perforated; elytra of male very short, without a mirror; elytra of female small, reduced to lateral pads. *Odontogryllodes* n. gen., p. 153
- Anterior tibiae perforated; elytra of male usually provided with a mirror; elytra of female short, but usually touching on the median line. . . . . 3
- 3 Elytra of male truncated at apex, with fairly well-developed neurulation; mirror visible. . . . . 4  
Elytra of male very short, triangular, with very confused neurulation; no visible mirror. *Hemilandreva* Chop., p. 151
- 4 Anterior tibiae perforated on either side. . . . . *Duolandrevus* Kirby, p. 147  
Anterior tibiae presenting one tympanum only. . . . . 5
- 5 Tympanum on the internal face. *Endolandrevus* Sauss., p. 151  
Tympanum on the external face. *Landreva* Walk., p. 140
- 6 Posterior femora, long, usually as long as tibia and tarsus together; ocelli disposed in a straight line; body almost glabrous. . . . . 7  
Posterior femora no longer than tibia and metatarsus together; ocelli disposed as a triangle; body usually more or less pubescent. . . . . 10
- 7 Pronotum strongly widening in front, with markedly concave anterior margin; abdomen narrow at base; elytra very short. *Sphecogryllus* Chop., p. 31



	Pronotum not specially widening in front; elytra well developed.	8
8	Anterior metatarsi very short; very large species with unusually short ovipositor. .	9
	Anterior metatarsi moderately long; anterior and median tibiae ciliated with long hairs; less stout species with usually longer ovipositor.	<i>Gymnogryllus</i> Sauss., p. 20
9	Pronotum hollowed in the shape of a saddle. ..	<i>Macrogryllus</i> Sauss., p. 19
	Pronotum of the normal shape.	<i>Brachytrypes</i> Serv., p. 15
10	Both sexes with convex face.	11
	Face more or less flattened in the male	17
11	Both sexes apterous; anterior tibiae non-perforated.	<i>Cophogryllus</i> Sauss., p. 98
	Elytra well developed, in the male sex at least; anterior tibiae perforated with one or two foramina.	12
12	Head with narrow frontal rostrum.	13
	Head with wide frontal rostrum.	14
13	Head somewhat flattened above; body pubescent; ovipositor long.	<i>Gryllodes</i> Sauss., p. 85
	Head rounded, small; elytra very ample in male; ovipositor abortive.	<i>Itaropsis</i> Chop., p. 107
14	Elytra of male with well-developed mirror. . . . .	15
	Elytra of male with mirror indistinct or small, displaced towards the apex	16
15	Body very convex; female with short, lateral elytra. . . . .	<i>Gryllopsis</i> Chop., p. 68
	Body not so convex; female with more or less perfectly developed elytra, never reduced to small, lateral pads..	<i>Gryllus</i> L., p. 32
16	Small, <i>Nemobius</i> -like species; posterior tibiae armed with feebly movable spines. . . . .	<i>Nemobiodes</i> Chop., p. 89
	Species of medium size, <i>Gryllus</i> -like; posterior tibiae armed with immovable spines. ..	<i>Callogryllus</i> Sjöst., p. 91
17	Both sexes apterous.	<i>Scapsipedoides</i> Chop., p. 119
	Elytra present in both sexes.	18
18	Male with flattened or somewhat concave face, but forehead without any prolongation. ..	19
	Face of the male strongly flattened and forehead more or less strongly prolonged. . . . .	20
19	Frontal rostrum convex as in the genus <i>Gryllus</i> .	<i>Scapsipedus</i> Sauss., p. 110
	Frontal rostrum of male subangulate, somewhat prominent, with a small apical depression.	<i>Coiblemmus</i> Chop., p. 134
20	Frontal rostrum of male projecting but simply angular.	<i>Loxoblemmus</i> Sauss., p. 121

- Frontal rostrum of male strongly projecting, corneous or presenting a membranaceous process. 21
- 21 Frontal rostrum of male presenting a wide corneous process. *Stephoblemmus* Sauss., p. 136
- Frontal rostrum of male presenting a membranaceous process. . . . . 22
- 22 Membranaceous process deeply divided into two large lobes. *Meristoblemmus* Jones & Chop., p. 138
- Membranaceous process non-divided. *Parasciobia* Chop., p. 138

### Genus BRACHYTRYPES Serville

1839. *Brachytrypes* Serville, *Ins. Orth.*, 323.  
 1846. *Brachytrypes* Agassiz, *Nom. Zool. Ind. Univ.*, 52.  
 1877. *Brachytrypus* Saussure, *Mém. Soc. Genève*, 25, 115.

*Type*.—*Gryllus membranaceus* Drury.

*Range*.—Tropical Asia, Africa, Sicily.

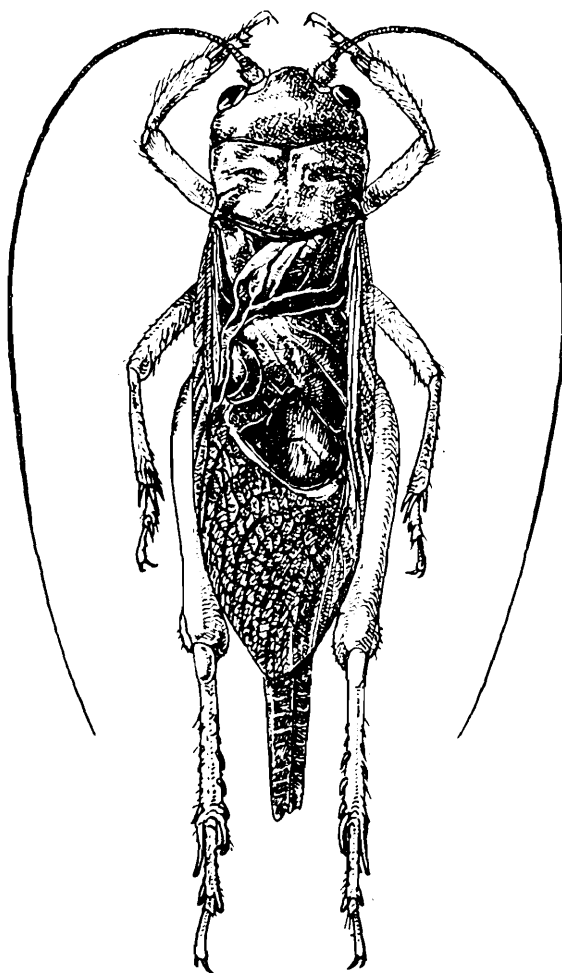


FIG. 12. *Brachytrypes terrificus* Walk., ♂ (× 1.5).

The *Brachytrypes* are big Gryllids, with body and legs feebly pubescent or glabrous. The legs are strong, the anterior and median tibiae armed with short and stout apical spurs; length of posterior femora equalling that of tibia and tarsus together. The pronotum is rather strongly dilated in front in the male, less so in the female. Ovipositor very short, almost rudimentary. In both sexes the elytra extend to the apex of abdomen; the wings are a little longer.

The *Brachytrypes* burrow deep holes which can attain more than a metre in length. In *B. portentosus*, of which the egg-laying is known, it takes place in the bottom of this hole; the ovipositor seems without use.

#### Key to the species of BRACHYTRYPES

- |   |  |                                    |
|---|--|------------------------------------|
| 1 | Very large size (35–42 mm.).   | 2                                  |
|   | Size medium (about 25 mm.). . . . .  | <i>orientalis</i> (Burm.), p. 17   |
| 2 | Pronotum strongly widening in front;<br>colour uniformly testaceous brown;<br>ovipositor very short. . . . .                 | <i>portentosus</i> (Licht.), p. 16 |
|   | Pronotum feebly widening; head, pronotum and legs rufous brown, contrasting with the dark elytra; ovipositor quite abortive. | <i>terrificus</i> Walk., p. 18     |

### 7. *Brachytrypes portentosus* (Lichtenstein) (Fig. 15)

1796. *Acheta portentosa* Lichtenstein, *Cat. Mus. zool. Hamburg*, 3, 86.  
 1813. *Gryllus* (*Acheta*) *achatina* Stoll, *Spectres*, 4, pl. 2 C, fig. 8.  
 1877. *Brachytrypus achatinus* Saussure, *Mém. Soc. Genève*, 25, 121, pl. 14 (XIX), figs. 4, 4a.  
 1931. *Brachytrypes portentosus* Chopard, *Bull. Raffles Mus.*, No. 6, 128.

A large species. *Colouration* fulvous, shining. *Head* big, round, sparsely punctated; ocelli large, disposed on a transverse line. *Pronotum* enlarged in front, chiefly in the male; its surface is rather strongly punctated and presents two testaceo-rufous spots. *Legs* strong; anterior metatarsi very short; posterior tibiae armed with 4 or 5 spines on each superior margin; posterior metatarsi long, armed above with 4 or 5 denticles on each margin.

♂: Mirror rather small, oblique, somewhat irregular and variable; 2 or 3 principal oblique veins and 1 or 2 smaller ones. Wings longer than the elytra.

♀: *Ovipositor* short, feebly curved, with apical valves narrow, lanceolate (fig. 15).

*Length* of body 37–44 mm.; pronot. 7–9·5 mm.; post. fem. 20–24 mm.; elytra 26–30 mm.; ovipositor 7·5–8 mm.

*Range*.—INDIA: United Provinces (Uttar Pradesh): Dehra Dun (I.M.). Bihar: Pachrukhi (Phil. M.). W Bengal: Calcutta (I.M.); Darjeeling Dist. (I.M.); Siliguri (I.M.). Assam: Kalligunga; Cachar; Sibsagar; Mangaldai Ghat; Garo Hills (I.M.); Ledo (Phil. M.). Mysore: Shimoga (Phil. M.). Madras (I.M.). EAST PAKISTAN: Dacca Dist.; Damukdia (I.M.). BURMA: Pakokko (I.M.); Toungoo; Shingbwiayang (Phil. M.). MALAYA: Perak: Taiping; Gunong Kledang. Pahang: Kuala Tahan. Johore: Tanjong; Penang. Singapore (Sel. M.). Kuala Lumpur (B.M.).

Common everywhere in Java, Sumatra, Malay Peninsula; in India, its distribution is insufficiently known.

The biology of this species has been studied by C. C. Ghosh (*Mém. Dep. Agr. India*, 4, No. 3, 1 pl.) who recognized that it makes five moults and the female lays its eggs in the bottom of a deep burrow. It is considered to be a serious pest of the young plantations of tobacco, rice, tea and various garden plants.

## 8. *Brachytrypes orientalis* (Burmeister)

(Fig. 16)

- 1832. *Gryllus orientalis* Burmeister, *Handb. Ent.*, 2, 735.
- 1869. *Brachytrypes ferreus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 11;
- 1869. *Brachytrypes bisignatus* Walker, *idem*, 11.
- ? 1869. *Brachytrypes truculentus* Walker, *idem*, 12.
- 1877. *Brachytrypus orientalis* Saussure, *Mém. Soc. Genève*, 25, 122. Chopard, 1936, *Ceylon J. Sc.*, (B) 20, 20. Sandra-sagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 542.
- ? 1893. *Apterogryllus deplanatus* Brunner, *Ann. Mus. Genova*, 33, 197.
- 1931. *Brachytrypes portentosus* var. *orientalis* Chopard, *Bull. Raffles Mus.*, No. 6, 128.

This species is much smaller than the preceding; its size scarcely surpasses that of a big *Gryllus*. The elytral neuration of the male is very similar to that of *portentosus*; yet it presents a difference, which seems constant, in the apical part which is divided into short, nearly square areolae, whereas in *portentosus* these areolae are very long. In the female the ovipositor is shorter and thicker, with shorter apical valves (fig. 16).

*Length* of body 24–26 mm.; pronot. 4–4·8 mm.; width of pronot. 8–9 mm.; post. fem. 14·5–15·5 mm.; elytra 16·5–20 mm.; ovipositor 3–4 mm.

*Range*.—INDIA: W Bengal: Calcutta (I.M.). Assam: Sib-sagar (I.M.); Chabua (? Cheduba) (U.S.N.M.); Ledo (Phil. M.). Orissa: Balighai nr. Puri (I.M.). Madras: Trichinopoly (P.M.); Negapatam (Phil. M.). Mysore: Shimoga (P.M.). CEYLON: Balangoda (Col. M.). BURMA: Thingannyinaung to Myawadi; Yenanggyaung Magwe (I.M.). MALAYA: Kuala Lumpur (Sel. M., B.M.).

Professor Ebner, who examined for me Brunner's type of *A. deplanatus*, in Vienna, informs me that it is a *Brachytrypes* nymph, which may be the present species or *portentosus*.

## 9. *Brachytrypes terrificus* Walker

(Figs. 12, 17)

1869. *Brachytrypes terrificus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 10.

As large as *portentosus*, but somewhat more elongate. *Colouration* rather different: head, pronotum and legs of a rather bright rufous, contrasting with the brown elytra.<sup>1</sup> *Head* as wide as pronotum in front, rounded, shining, finely pubescent on the sides; ocelli small. *Pronotum* much wider than long, feebly enlarged in front and constricted in the middle; anterior margin feebly concave, posterior margin strongly sinuated, both narrowly blackish; disk rather depressed, presenting a deep transverse furrow a little before the posterior margin. *Abdomen* brown above, testaceous beneath. *Anterior legs* covered with long, fulvous hairs; tibiae compressed and somewhat enlarged, perforated with two oval tympana; internal face armed with two apical spurs which are long, wide at base, acute at apex, with denticulated margins; one somewhat shorter external apical spur; metatarsus short, very hairy; 3rd joint as long as the metatarsus. Middle legs a little longer than the front legs, not so stout and not so strongly pubescent; tibiae not at all dilated, armed with 4 apical spurs. Posterior femora long and moderately dilated at base; tibiae armed with 5 or 6 spines on each margin; infero-apical spurs very small, the other two, on each side, long and acute at tip; the supero-internal spur only very little longer than the others; metatarsus rather long, armed with 6 denticles on the supero-internal margin, 1 only, apical, on the external margin; apical spurs of the metatarsus compressed, stout, the internal almost twice as long as the external.

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<sup>1</sup> This relatively bright colour has disappeared in Walker's type.

♂ : *Elytra* extending to the apex of abdomen; mirror small, a little longer than wide, divided in the middle by a curved vein; diagonal vein rather short; chords strongly bent; 2 long oblique veins, starting almost from the same point near the anal knot, diverging, and 2 short ones in the angle of the archet; apical field long, presenting 10 regular veins and a close reticulation of small, long areolae. Wings long.

♀ : *Elytra* and wings as long as in the male; dorsal field of elytra with a very regular venation; the areolae formed by the transverse veinlets almost square. *Ovipositor* reduced to very small, plain valves, quite nymphal in shape (fig. 17).

*Length* of body 35–42 mm.; pronot. 7·5 mm.; width of pronot. 12 mm.; post fem. ♂ 25 mm., ♀ 22–23 mm.; post. tib. ♂ 15 mm., ♀ 14 mm.; post. tarsus ♂ 10 mm., ♀ 9 mm.; elytra 31 mm.; ovipositor 2·5 mm.

Although similar to *portentosus* in its general shape, this fine species differs in its colouration, its pronotum scarcely widening in front and the ovipositor of the female being strongly reduced and certainly quite useless.

*Range*.—INDIA : Madras (type, B.M.). Mysore : Bhadravati (P.M.).

### Genus MACROGRYLLUS Saussure

1877. *Macrogyllus* Saussure, *Mém. Soc. Genève*, 25, 113.

*Type*.—*Brachytrypus* (*Macrogyllus*) *ephippium* Sauss.

*Range*.—Malasia, South Africa.

This genus is close to the preceding from which it differs chiefly by the shape of the pronotum. This is feebly narrowing in front; it is excavated in the middle, in the shape of a saddle; the anterior angle of the lateral lobes is not prolonged, which is the case in *Brachytrypes*. Posterior femora feebly dilated at base, as long as tibia and tarsus together. *Elytra* long; mirror rather large, triangular, rounded posteriorly; numerous oblique veins. Female unknown.

### 10. *Macrogyllus ephippium* (Saussure)

(Fig. 13)

1877. *Brachytrypus ephippium* Saussure, *Mém. Soc. Genève*, 25, 113, pl. 14 (XIX), figs. 5, 5e.

1931. *Macrogyllus ephippium* Chopard, *Bull. Raffles Mus.*, No. 6, 129.

♂ : Large species. *Colouration* a chestnut-brown. *Head* rather small, round. *Elytra* extending to the apex of abdomen; mirror angulate in front, rounded backwards, divided in

the middle by a angulate vein; 8 oblique veins; apical field rather small; lateral field presenting 7 branches of the *Sc.* and 7 precostal veins. *Legs* : Posterior tibiae armed with 3 spines on each margin.

*Length* of body 40 mm.; pronot. 7.5 mm.; width of pronot., in front 9.5 mm.; width of pronot. posteriorly 11 mm.; post. fem. 23.5 mm.; elytra 28 mm.

*Range*.—MALAYA : Perak : Batang Padang (Sel. M.). JAVA (type in G.M.).

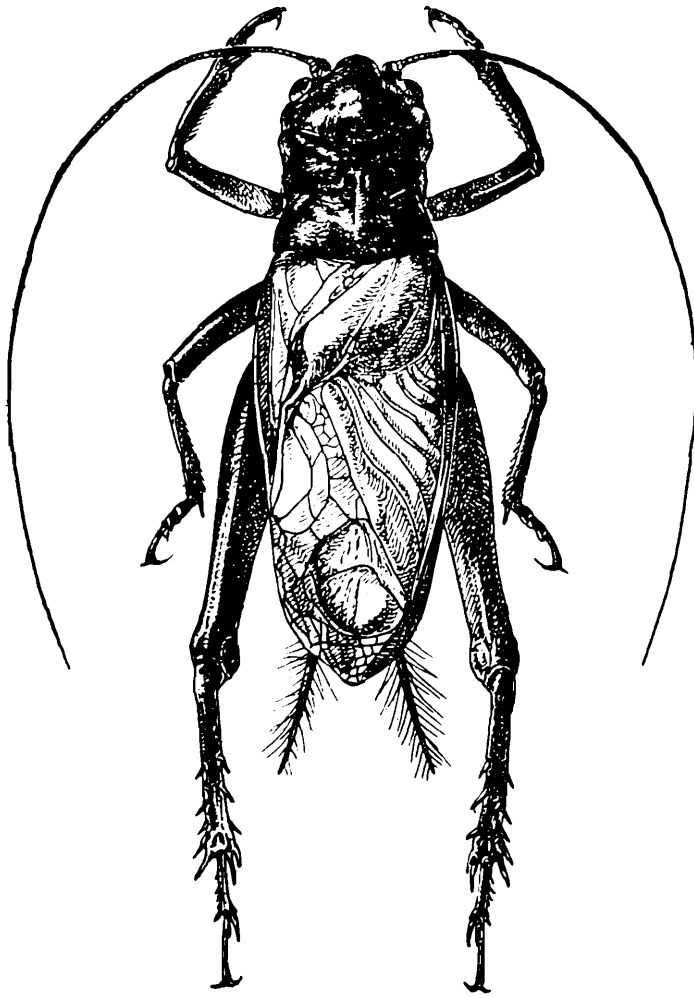


FIG. 13. *Macrogyllus ephippium* Sauss., ♂ ( $\times 1.5$ ).

### Genus GYMNOGRYLLUS Saussure

1877. *Gymnogryllus* Saussure, *Mém. Soc. Genève*, 25, 123.

*Type*.—*Gryllus elegans* Guérin.

*Range*.—Tropical Asia; Africa south of the Sahara.

This genus is very close to *Brachytrypes* and it is difficult to decide if certain species should be included in one genus or the

other. As a rule, the *Gymnogryllus* species are smaller; their shape is more elongated, with the pronotum not at all enlarged in front; the anterior and middle tibiae are covered with an abundant pubescence; the anterior metatarsi are longer. In the female, the ovipositor is of variable length but usually more developed than in *Brachytrypes*.

*Key to the species of GYMNOGRYLLUS*

- |   |   |                                       |   |
|---|---|---------------------------------------|---|
| 1 | Colouration varied with black and yellow; posterior femora adorned with black and yellow bands. | <i>elegans</i> (Guér.), p. 21         |   |
|   | Colouration not so bright.  |                                       | 2 |
| 2 | Smaller species (11·5–22 mm.). . .  |                                       | 3 |
|   | Larger species (30–40 mm.); colouration uniformly testaceous brown. . .                         |                                       | 6 |
| 3 | Pronotum brown with lateral lobes widely yellowish. .   | <i>humeralis</i> (Walk.), p. 26       |   |
|   | Pronotum blackish. .  |                                       | 4 |
| 4 | Smaller (11·5–16 mm.); antennae brown with a whitish ring. .                                    |                                       | 5 |
|   | Larger (18–21 mm.); antennae without whitish ring. . .  | <i>erythrocephalus</i> (Serv.), p. 28 |   |
| 5 | Posterior femora blackish with yellowish top. . . . .   | <i>minor</i> n. sp., p. 29            |   |
|   | Posterior femora adorned with a wide brown band. . . . .  | <i>fascipes</i> n. sp. p. 30          |   |
| 6 | Body and legs pubescent. . .  | <i>pulvillatus</i> (Sauss.), p. 24    |   |
|   | Body and legs glabrous or nearly so. .  |                                       | 7 |
| 7 | Ovipositor rather long (10–12 mm.)..  | <i>angustus</i> (Sauss.), p. 23       |   |
|   | Ovipositor very short (3–4 mm.).  |                                       | 8 |
| 8 | Apical valves of ovipositor narrow, lanceolate with straight margins. . .                       | <i>brachyxiphus</i> Chop., p. 24      |   |
|   | Apical valves of ovipositor wide with superior margin strongly convex. .                        | <i>birmanus</i> (Chop.), p. 26        |   |

**11. *Gymnogryllus elegans* (Guérin)**

(Fig. 14)

1834. *Gryllus elegans* Guérin, *Voy. Bélanger Ind. Orient., Zoologie*, 495, pl. 9, fig. 1.  
 1877. *Brachytrypus (Gymnogryllus) elegans* Saussure, *Mém. Soc. Genève*, 25, 127, pl. 14 (XX), figs. 1, 1a.  
 1931. *Gymnogryllus elegans* Chopard, *Bull. Raffles Mus.*, No. 6, 128.

Rather large, glabrous, shining. *Head* as wide as pronotum in front, rounded, blackish with 2 or 4 feebly marked light bands on the occiput. *Palpi* testaceous; 5th joint long, with blackish top. *Antennae* brownish with a long yellowish part about the middle; two first joints testaceous, the 1st



one with a blackish stripe. *Pronotum* very feebly dilated in front; anterior margin feebly convex, posterior margin sinuated; disk blackish adorned with a yellowish band along the posterior margin; lateral lobes with straight inferior margin, widely bordered with yellowish in front. *Legs* feebly pubescent. Anterior and median femora testaceous, darkened in the distal half; tibiae brown; metatarsus shorter than the 3rd joint of the tarsus. Posterior femora feebly dilated at base, dark in their apical half and adorned at base with a wide oblique blackish band; in certain examples, the blackish

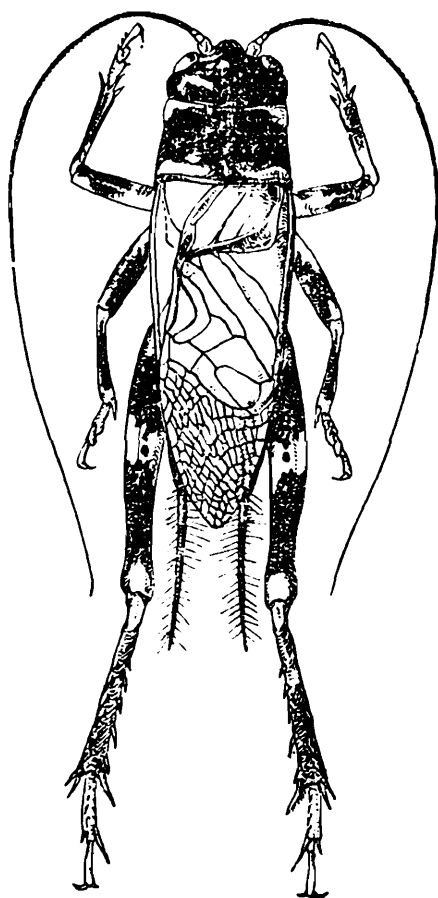


FIG. 14. *Gymnogryllus elegans* Guér., ♂ ( $\times 1.5$ ).

parts are much more developed, so that the femur is rather blackish with two oblique testaceous bands. Posterior tibiae brown, armed with 5 short spines on each margin; apical spurs long, diverging, supero-internal one much longer than the median; posterior metatarsi long, armed above with 6 external, 4 internal denticles.

♂ : *Elytra* extending to the apex of abdomen, pale rufous; mirror large, a little wider than long, oblique, almost square, divided behind the middle by an oblique vein; chords strongly

bent; 2 oblique veins; apical field very large, reticulated in long, narrow, areolae. Wings somewhat variable in length but usually longer than the elytra.

♀: *Elytra* and wings as long as in the male; *Cu.* bearing 4 branches; areolae of the dorsal field rather regular, long, narrow; base of the elytra a little thickened, without veins. *Ovipositor* rather short, with lanceolate, narrow apical valves.

*Length* of body 25–29 mm.; length with wings 30–35 mm.; pronot. 4–4.5 mm.; post. fem. 16–17 mm.; post. tib. 8–9.5 mm.; elytra 20–21 mm.; ovipositor 10–11 mm.

This fine species is very distinct owing to its rather bright colouration.

*Range*.—MALAYA: Pahang (V.M.): Lubok Tamang, 3,500 ft. (Sel. M., P.M.); Fraser's Hill (Sel. M.). Selangor: Bukit Kutu; Semangko Pass (Sel. M.). Perak: Gunong Kledang; Maxwell's Hill (Sel. M.); The Gap; Janah Rata (B.M.). SUMATRA. JAVA.

## 12. *Gymnogryllus angustus* (Saussure)

1877. *Brachytrypus (Gymnogryllus) angustus* Saussure, *Mém. Soc. Genève*, 25, 126, pl. 14 (XX), figs. 1, 1i.

1931. *Gymnogryllus pulvillatus* Chopard (*non* Saussure), *Bull. Raffles Mus.*, No. 6, 128 (part).

In shape and size this species is similar to the preceding but its colour is entirely testaceous-brown. Rather slender; shining, glabrous. *Head* short, rounded; frontal rostrum twice as wide as 1st antennal joint, with sharp edges. Ocelli disposed on a feebly curved line, the median more or less completely atrophied. Face adorned with a yellow spot. Palpi long, slender; 3rd joint longer than 4th, 5th darkened and feebly enlarged at apex. *Pronotum* with parallel sides, not at all widening in front; anterior margin feebly concave; lateral lobes square with rounded angles, horizontal inferior margin, adorned with a testaceous band which does not reach the anterior angle. *Legs* testaceous. Anterior and median tibiae armed with long, acute apical spurs; metatarsus shorter than 3rd joint. Posterior femora weakly darkened at apex; posterior tibiae armed with 4 spines on each margin; apical spurs long, the interno-superior one the longest; metatarsus long, compressed, armed above with 5–7 denticles.

♂: *Elytra* extending to the apex of abdomen; mirror almost square, oblique, rounded backwards, divided by an oblique vein; 2 oblique veins, long and somewhat diverging; diagonal vein furcate at base; apical field long. Wings longer than the elytra.

♀: *Elytra* as long as in the male, densely reticulated. *Ovipositor* rather long, with small, acute apical valves.

*Length* of body 30–37 mm.; pronot. 5·2–6 mm.; post. fem. 18·5–21 mm.; *elytra* 22–24 mm.; *ovipositor* 10–12 mm.

This species looks rather like *Brachytrypes orientalis*, but its general shape is more slender, the pronotum not at all enlarged in front, even in the male; in the female, the *ovipositor* is much longer.

*Range*.—MALAYA: Selangor: Ulu Gombak. Johore: Gumpang Pulai (Sel. M.). SUMATRA. JAVA. BORNEO. SARAWAK.

### 13. *Gymnogryllus pulvillatus* (Saussure)

1877. *Brachytrypus* (*Gymnogryllus*) *pulvillatus* Saussure, *Mém. Soc. Genève*, 25, 124.

1931. *Gymnogryllus pulvillatus* Chopard, *Bull. Raffles Mus*, No. 6, 128 (part).

♀: In shape, size and colour similar to the preceding, but body and legs pubescent. *Pronotum* very feebly enlarged in front; anterior margin concave, fringed with fulvous hairs. Posterior tibiae armed with 6 spines on each margin; posterior metatarsi presenting 5–6 strong denticles. *Elytra* as long as abdomen; *Sc.* bearing 4–5 branches; 6 or 7 precostal veins; dorsal field reticulated in lozenges. Wings longer than the *elytra*. *Ovipositor* rather long, with apical valves flattened, the superior ones moderately acute, the inferior rounded with acute internal angle. Male unknown (after Saussure).

*Length* of body ♀ 33 mm.; pronot. 5·7 mm.; post. fem. 21 mm.; *elytra* 22·5 mm.; *ovipositor* 12·6 mm.

This species is insufficiently known and certainly has been confused with the preceding.

*Range*.—MALAYA. JAVA (Saussure's type in G.M.).

### 14. *Gymnogryllus brachyxiphus* Chopard

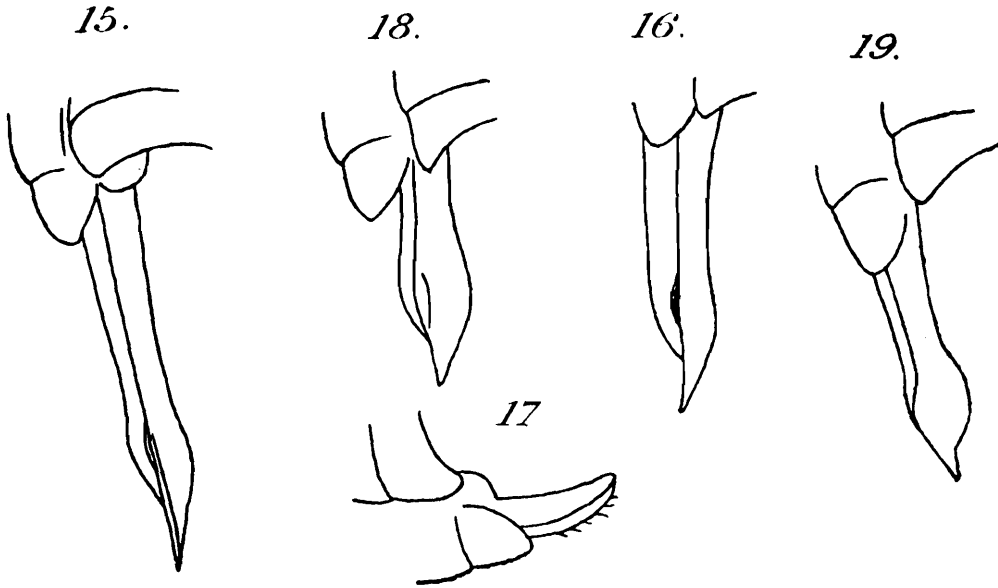
(Fig. 18)

1931. *Gymnogryllus brachyxiphus* Chopard, *Bull. Raffles Mus.*, No. 6, 128.

*Size* and general appearance of *G. pulvillatus*. *Colour* testaceous rufous; very feebly pubescent. *Head* big, rounded; skull rufous, presenting a sparse minute punctation; face yellow. *Ocelli* large, yellow, nearly in a straight line. *Pronotum* wider than long, very faintly widening in front; anterior margin concave, posterior one feebly sinuated; disk rufous,

lateral lobes yellowish. *Legs* testaceous, pubescent. Anterior tibiae presenting a rather large oval tympanum on the external face; internal face showing a much smaller tympanum, followed by a smooth furrow, crossing the tibia obliquely to the apex; apical spurs very strong. Posterior femora thick, pubescent; tibiae armed with 5 spines on each margin; supero-internal spur much longer than the median one.

♂: *Elytra* rufous, shining; anal field thickened with faintly visible veins; mirror small, wide, divided into three parts by a furcate vein; diagonal vein short, undulated; chords also short, the second one much curved; 3 oblique veins, of which two are rather long, diverging and emerging nearly from the same



FIGS. 15 to 19. Ovipositor of:

- 15. *Brachytrypes portentosus*.
- 16. *B. orientalis*.
- 17. *B. terrificus*.
- 18. *Gymnogryllus brachyriphus*.
- 19. *G. birmanus*.

point; the third one short, in the angle of the archet; apical field very large, presenting 10 veins and a very close and regular reticulation; lateral field with 8 precostal veins close together, and 3 branches of the *Sc*. Wings caudate.

♀: *Elytra* feebly thickened at base; dorsal field presenting 3 free veins, the first of which is furcate, 5 branches of the *Cu*. and 3 of the *Cup*.; all these veins are regular, rather oblique, the reticulation between them rather close, regular and formed by veinlets which are a little curved instead of being straight as usual. *Ovipositor* short, slender; its apical valves are small, lanceolate, rather acute (fig. 18).

*Length* of body ♂ 28 mm., ♀ 26 mm.; post. fem. ♂ 19 mm., ♀ 18 mm.; elytra ♂ 22 mm., ♀ 20 mm.; ovipositor 4 mm.

This species is very close to the two preceding; the elytra present in the male a relatively very large apical field, with a tiny reticulation; in the female the ovipositor is scarcely half as long as in the foresaid species and the veinlets of the elytra are somewhat curved.

*Range*.—MALAYA: Selangor: Ulu Gombak (types in Sel. M.); Kuala Lumpur; Negri Sembilan; Bukit Tanga (Sel. M.). SIAM: Bangkok (B.M.).

## 15. *Gymnogryllus birmanus* (Chopard)

(Fig. 19)

1928. *Brachytrypes birmanus* Chopard, *Rec. Ind. Mus.*, **30**, 6, fig. 8.

♀: In size equal to *Brachytrypes orientalis*; colouration brown, very shining. *Head* as wide as pronotum; vertex with a rather strong, scarce punctation. *Pronotum* with anterior margin feebly concave, posterior margin sinuated, straight sides; disk brown with two reddish-brown impressed areas; lateral lobes almost entirely yellowish. *Legs* slightly pubescent; posterior tibiae with 5 moderately strong spines on each margin. *Elytra* brown, shining, with very regular veins (3 free veins and 9 branches of the *Cu.* and *Cup.*); transverse veinlets numerous, forming nearly square areolae. Wings caudate. *Ovipositor* (fig. 19) very short, straight; superior valves enlarged at apex, ending in a sharp point, inferior ones deeply notched at base of the apical part. Male unknown.

*Length* of body 25 mm.; post. fem. 15 mm.; elytra 19 mm.; ovipositor 3 mm.

Similar to the preceding but differing in elytral venation and in the shape of the apical valves of the ovipositor.

*Range*.—BURMA: Rangoon (types in P.M., U.S.N.M.).

## 16. *Gymnogryllus humeralis* (Walker)

1871. *Gryllus humeralis* Walker, *Cat. Derm. Salt. Br. M.*, **5**, Suppl., 5.

1877. *Brachytrypus (Gymnogryllus) humeralis* Saussure, *Mém. Soc. Genève*, **25**, 129, pl. 14 (XX), fig. 2.

1933. *Gymnogryllus humeralis* Chopard, *Rev. Suisse Zool.*, **40**, 162. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 285. Chopard, 1936, *Ceylon J. Sc.*, (B) **20**, 21. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 543. Chatterjee, 1955, *Ind. Forest Rec.*, *Dehra Dun*, **81**, 509.

*Size medium. Colouration* testaceous-brown, very shining; pronotum darker with a wide yellowish band along the anterior margin. *Head* big, as wide as the pronotum in front; skull adorned with 5 yellowish lines, 3 short in the middle and one longer on each side, extending to the eye and lost in the yellow cheek; forehead adorned with a yellow spot around the anterior ocellus. *Pronotum* rather strongly enlarged in front, rufous-brown with two large yellowish spots which form a wide band uniting in front with the lateral lobes of the same colour; anterior margin feebly concave; median line finely furrowed. *Abdomen* dark brown. *Legs* rufous; anterior and median femora and tibiae weakly pubescent; anterior tibiae armed with 3 large apical spurs and perforated with a large, oval external tympanum and a small round internal one; median tibiae armed with 4 apical spurs. Posterior femora shining, a little darkened at apex; tibiae armed with 5 spines on each margin; the two large apical spurs nearly of the same length; posterior metatarsi rather long, armed on each superior margin with 8 to 10 denticles.

♂: *Elytra* extending to the apex of abdomen, pale testaceous, translucent, very shining; mirror a little wider than long, rounded backwards, anterior angle obtuse, divided by a curved vein; diagonal vein short, united to the first chord by two veinlets; chords short, feebly curved, the first one united to the mirror by a long veinlet; 3 oblique veins sinuated, parallel; apical field with 5 or 6 regular sectors; transverse veinlets forming long, regular areolae; lateral field almost transparent; *Sc.* somewhat curved, bearing 3 branches; 4 regularly distant precostal veins. Wings of variable length.

♀: Same shape and colour as the male; pronotum not quite so strongly widening in front. *Elytra* as long as abdomen; dorsal field with oblique, regularly distant veins; reticulation formed of rather regular, long areolae. *Ovipositor* rather long; apical valves small, narrow, lanceolate.

*Length* of body 19–22 mm.; length with wings 29–31 mm.; pronot. 4·5–6 mm.; post. fem. 13–15 mm.; elytra ♂ 13·5–14 mm., ♀ 12 mm.; ovipositor 12·5 mm.

This species is easily recognized by the colouration of the pronotum. Its general shape is shorter than in the preceding species and reminds one of a *Gryllus*, from which it differs by the long posterior femora, by the absence of pubescence and the glabrous appearance.

*Range*.—INDIA: Bombay (type in B.M.); Bandra (B.M.); Salsette Island; Andheri; Malabar (P.M.). Goa: Marmagao (P.M.). Mysore: Shimoga (P.M.); Cochin (Kerala): Trivandrum (I.M.). Madras: Coimbatore Dist.; Nalparai, 3,500 ft.

(P.M.); Nilgiris (G.M.). CEYLON: Peradeniya; Kandy (P.M.); Madola near Opanaka; Chilaw (Col. M.); numerous localities (Sandrasagara). According to Chatterjee, this species presents three generations in Bombay compared with one and a half in the Dehra Dun area. It is polyphagous and tends to attack *Casuarina* seedlings when vegetation is removed by weeding. MALAYA: Langkawi Island (P.M.). TONKIN.

### 17. *Gymnogryllus erythrocephalus* (Serville)

1839. *Gryllus erythrocephalus* Serville, *Ins. Orth.*, 339.  
 1928. *Gymnogryllus ruficeps* Chopard, *Rec. Ind. Mus.*, 30, 7.  
 1936. *Gymnogryllus erythrocephalus* Chopard, *Ceylon J. Sc.*, (B) 20, 21. Chopard and Chatterjee, 1937, *Ind. Forest Rec.*, N.S., 3, 25. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 543.

♂: Medium size. *Colouration* dark brown with yellowish legs; elytra for the most part transparent. *Head* as wide as pronotum, wholly rufous (there is a variety with black head), shining; frontal rostrum finely punctated. Ocelli rather large, disposed on a straight line. Mouth-parts rufous; base of mandibles somewhat excavated and ridged. Palpi yellowish, each joint feebly darkened at base. Antennae dark brown turning to rufous towards the apex. *Pronotum* transverse with rather strongly concave anterior margin, posterior margin weakly sinuated; disk feebly convex, rufous-brown, shining, more or less darkened posteriorly; lateral lobes of the same colour as the disk. *Abdomen* brownish above, yellowish beneath; subgenital plate compressed, subacute at apex. *Legs* strong, yellowish, feebly pubescent. Posterior femora long; posterior tibiae armed with 5 long, internal and 5 shorter external spines; supero-internal apical spur longer than the median. *Elytra* extending a little farther than the abdominal extremity, brownish at base and at apex, almost transparent in the middle; mirror feebly transverse, angulate in front, rounded backwards with supero-external margin much longer than the supero-internal, divided (or not) in the middle by a curved vein; diagonal vein short; chords strongly curved, the first united to the angle of the mirror by a long vein; 3 oblique veins; apical field of medium length, presenting 7 regularly spaced sectors; reticulation formed of very regular, long areolae; lateral field presenting 5 precostal veins, regularly spaced, and 2 branches of the Sc. Wings caudate, rather scarcely short.

♀: A little smaller than the male, presenting the same colour and general aspect. *Elytra* dark brown, shining;

dorsal field presenting a somewhat confused venation, formed of 5 rather irregular and anastomosed longitudinal veins; transverse veinlets few in number, forming long, irregular areolae; lateral field as in the male; Sc. with one branch only. Wings caudate, whitish; as in the male, the micropterous condition seems more scarce than the macropterous. Ovipositor rather long with apical valves very narrow, acute at apex.

*Length* of body 18–21.5 mm.; length with wings 25–27 mm.; pronot. 3.5–3.8 mm.; post. fem. 9–11.5 mm.; post. tib. 7–8 mm.; elytra 12–13 mm.; ovipositor 13–14.5 mm.

The typical form of this species is very easily recognized by the colour of the head.

*Range*.—WEST PAKISTAN: Lyallpur (B.M.). INDIA: Bihar (Serville's type, which is lost); Chapra (B.M.). United Provinces (Uttar Pradesh): Dehra Dun; Uduparani (F.R.I.). Madras: Coromandel coast (type of *ruficeps*, I.M.). Mysore: Shimoga; Nedungadu (P.M.). CEYLON: Marai Villu; Peradeniya (Col. M.); numerous localities (Sāndrasagara).

This species has been reported to cause considerable damage to the young plants of *Casuarina equisetifolia* planted on the sands along the Western coast of north Kanara (Chatterjee).

1931. Var. *melanocephalus* Chopard, *Ark. Zool.*, (A) **23**, No. 9, 7.  
Chopard, 1936, *Ceylon J. Sc.*, (B) **20**, 26. Sāndrasagara,  
1954, *J. Bombay nat. Hist. Soc.*, **52**, 543.

This is a mere colour variation differing from the type in the blackish head. Certain examples with pronotum suffused with yellowish in front look very much like *G. humeralis*, but differ from it by the more slender general shape and the pronotum not at all widening in front.

## 18. *Gymnogryllus minor* n. sp.

1877. *Brachytrypus* (*Gymnogryllus*) *erythrocephalus* Saussure (non Serville), *Mém. Soc. Genève*, **25**, 130, pl. 14 (XX), fig. 3.  
Bolivar, 1900, *Ann. Soc. ent. Fr.*, **68** (1899), 795.

Much smaller than the preceding but presenting the same general aspect and colouration. Head reddish or blackish (as in the var. *melanocephalus* of *erythrocephalus*). Antennae presenting about the middle a long whitish segment. Pronotum strongly transverse, entirely blackish or presenting two reddish-brown piriform impresses. Anterior and median legs yellowish. Posterior femora blackish with yellowish top; posterior tibiae armed with 4 spines on each margin. Cerci brown, yellowish at base.



♂: *Elytra* almost transparent; venation as in *erythrocephalus* except the somewhat wider mirror and shorter apical field, with 3 sectors only and a wide reticulation of nearly square areolae; lateral field blackish; *Sc.* plain.

♀: *Elytral veins* feebly oblique, rather regular; *Cu.* with two branches; reticulation somewhat irregular, forming long, narrow areolae. *Ovipositor* rather short, with apical valves lanceolate and narrow, but not so narrow as in *erythrocephalus*.

*Length* of body 11.5–13 mm.; length with wings 19–22 mm.; pronot. 2.5–3 mm.; post. fem. 8–8.5 mm.; elytra 8–9.5 mm.; ovipositor 5–7 mm.

This species is very close to the preceding and has been confounded with it; yet, it is quite distinct by its much smaller size, by the colour of the antennae and posterior femora and by some details in the elytral venation. In the male sex, the genitalia present no appreciable difference.

*Range*.—WEST PAKISTAN: Rawalpindi (P.M.); Lyallpur (B.M.). INDIA: Central Provinces (Madhya Pradesh): South Mandala; Khiadrahi (B.M.). Bombay: Salsette Island (B.M.). Goa: Marmagao (P.M.). Mysore: Shimoga (types in P.M.); Nedungadu (Phil. M.). Madras: Pondicherry (P.M.); Coimbatore (Phil. M.). Kerala: Mahé. Bihar: Madhupur (P.M.); Chikalda, 3,650 ft. (B.M.). Assam: Doom Dooma (U.S.N.M.). BURMA: Rangoon (P.M.). SOUTH VIETNAM. JAVA.

## 19. *Gymnogryllus fascipes* n. sp.

♀: Very similar to *G. erythrocephalus* (Serv.) var. *melanocephalus*, but smaller. *Head* black, shining. *Antennae* brown with a whitish ring a little before the middle. *Pronotum* black with rufous brown impresses; lateral lobes wholly black. *Abdomen* brown. *Legs*: Anterior and median yellow; femora presenting on each side a brownish spot towards the apex. Posterior femora adorned with a wide brown band a little behind the middle of the external face; tibiae armed with 4 spines on each margin; posterior metatarsi long, compressed, armed with 7–8 denticles on each superior margin. *Elytra* extending to the apex of abdomen, brownish, shining; veins of the dorsal field somewhat irregular, the 4 branches of the *Cu.* more distant at base than at apex; transverse veinlets rather scarce and irregular; lateral field of the same colour as the dorsal field, presenting 5 very regularly distant precostal veins; *Sc.* bearing one branch. *Wings* long, whitish. *Ovipositor* short; apical valves narrow, acute.

*Length* of body 16 mm.; length with wings 25 mm.; pronot. 3.2 mm.; post. fem. 9.5 mm.; post. tib. 5.4 mm.; post. tarsi 4.5 mm.; elytra 11 mm.; ovipositor 4.5 mm.

*Range*.—INDIA: Central Provinces (Madhya Pradesh): Mohgaon (type in P.M.).

Although very similar to the two preceding, this species is quite distinguished by the fasciated posterior femora and the very short ovipositor.

## Genus SPHECOGRYLLUS Chopard

1933. *Sphecogryllus* Chopard, *Stylops*, 2, 117.

*Type*.—*Sphecogryllus armatus* Chopard.

*Range*.—South Malabar (Kerala).

Rather small. Head large, rounded. Pronotum strongly widening in front. Abdomen narrow at base. Legs short; anterior tibiae thickened, perforated at their external face only. Posterior femora as long as tibia and tarsus united. Elytra of female reduced to small lateral lobes. Male unknown.

### 20. *Sphecogryllus armatus* Chopard

(Fig. 20)

1933. *Sphecogryllus armatus* Chopard, *Stylops*, 2, 117, fig. 4.

♀: Rather small. *Colouration* rufous. *Head* big, rounded; frontal rostrum wide; face short; mandibles strong, the right one presenting a curious deformation (which is perhaps an abnormality) consisting of the presence of a deep depression along the basal margin, the lip of this depression ending in a rather strong tooth in the angle of the clypeus. Palpi rather short, testaceous. Antennae short and slender. Eyes small, their convexity forming no projection on the convexity of the head; ocelli disposed nearly on a straight line. *Pronotum* very strongly widening in front, with strongly concave anterior margin; disk feebly convex, shining; lateral lobes with inferior margin straight. *Abdomen* narrow at base, shining brown above, lighter beneath; subgenital plate small; cerci rather short. *Legs* short, rufous; anterior tibiae very short, thickened at apex, presenting a large, oval external tympanum, and armed at apex with 3 strong spurs which are longer than the metatarsus; this is also very short and its external face, as well as the extremity of the tibia, is armed with small spines. Median tibiae armed with 4 strong apical

spurs; metatarsi furnished with small spines similar to those of the anterior tarsi. Posterior femora thick; tibiae short, armed with 4 strong spines on each margin; apical spurs also very strong, the two large internal ones subequal in length; metatarsi short and thick, armed with 6 strong denticles on each margin, their apical spurs short, strong, the internal one extending nearly to the apex of the third joint. *Elytra* very short, in the shape of a rounded lobe, yellowish with 4 or 5 feebly marked veins. *Ovipositor* short, straight, with acute apical valves, the superior longer than the inferior ones.

*Length* of body 14 mm.; pronot. 2.5 mm.; post. fem. 7.5 mm.; post. tib. 4 mm.; elytra 1 mm.; ovipositor 5 mm.

*Range*.—INDIA: S. Malabar (Kerala): Dhoni forest (type, B.M.).

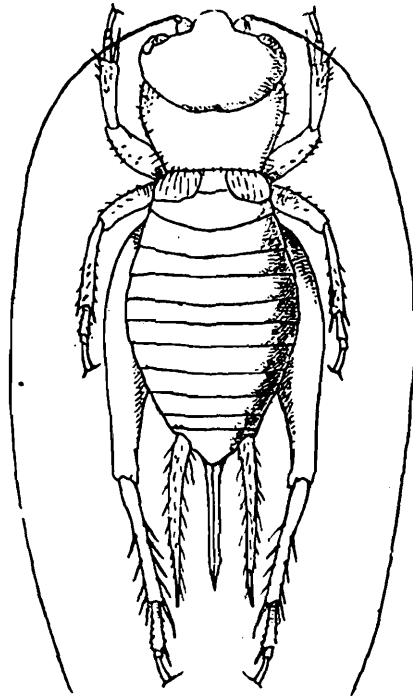


FIG. 20. *Sphecogryllus armatus* Chop., ♀ (after Chopard) ( $\times 3.0$ ).

### Genus GRYLLUS Linné

- 1758. *Gryllus* Linné, *Syst. Nat.* (éd. X), 1, 425.
- 1775. *Acheta* Fabricius, *Syst. Ent.*, 279.
- 1877. *Liogryllus* Saussure, *Mém. Soc. Genève*, 25, 134.
- 1935. *Gryllulus* Uvarov, *Ann. Mag. nat. Hist.*, (10) 16, 320.
- 1940. *Tartarogryllus* Tarbinsky, *Salt. Orth. Azerbaidzhan*, 18, 114.

*Type*.—*Gryllus domesticus* Linné.

*Range*.—Cosmopolitan.

The genus *Gryllus* presents the perfect average type of the family. The general shape is rather stout, the head rounded; legs rather short; anterior tibiae presenting a large, oval, external tympanum and a small, round, internal one (the latter is sometimes obliterated); posterior femora strongly dilated, feebly narrowing towards the apex. *Elytra* usually perfectly developed in both sexes; mirror of the male quite typical; elytra of the female usually as long or nearly as long as the abdomen, with regular, oblique veins. Wings caudate or more or less shortened; most of the species present a macropterous and a micropterous form. *Ovipositor* slender, straight, with apical valves rather small, lanceolate more or less acute at apex.

The species of this genus are very numerous and difficult to characterize. As a matter of fact, their determination is one of the most difficult problems presented by the systematics of Orthoptera. Most of the characters such as colour, width of the head, length of the elytra, length of ovipositor are highly variable. In the male sex, the shape of the mirror is rather constant but, above all, the genitalia afford reliable characters for the identification of species. But it is often quite impossible to name isolated females with certitude.

*Key to the species of GRYLLUS*

- 1 Body and legs almost glabrous.  
Rather large species typically black  
with a yellow spot at base of each  
elytron.... . *bimaculatus* De Geer,  
p. 35
- Body and legs more or less pubescent;  
colouration different. . . . . 2
- 2 Large or rather large species (length of  
body 18-26 mm.). . . . . 3
- Smaller species (length of body 8-16  
mm.).... . 14
- 3 Black with four whitish spots on the  
elytra. *quadrимaculatus* Sauss.,  
p. 37
- Elytra without whitish spots..... 4
- 4 Testaceous; head with a wide trans-  
verse brown band; body somewhat  
depressed.. . . . *domesticus* L., p. 37
- General colour brownish or blackish;  
body more convex. . . . . 5
- 5 Head without any marking. . . . . 6
- Head presenting a yellow spot or band  
along each eye. . . . . 7
- 6 Large species (length of body 21-28  
mm.); pubescent. . . . . *testaceus* Walk., p. 40

- Smaller (length of body 18-22 mm.);  
almost glabrous, shining... .. *oceanicus* Le Guillou, p. 42
- 7 Elytra shorter than the abdomen.  
Elytra extending to the apex of abdomen... .. 8
- 8 Very large species with relatively short posterior femora..  
Smaller species with longer posterior femora.. 11
- 9 Elytra almost black with a very conspicuous yellow humeral band (♀). *validus* n. sp., p. 42  
Elytra brown. . . . . 9
- 10 Mirror a little wider than long, almost rounded. *flavovittatus* Chop., p. 45  
Mirror much wider than long, triangular. . . . . 10
- 11 Head and pronotum blackish, contrasting with the testaceous elytra; mirror of the male almost apical, non-divided. *himalayanus* Chop., p. 44  
Elytra of the same colour as the anterior part of the body.. . . . *triangulifer* n. sp., p. 45
- 12 Posterior legs remarkably long; posterior femora relatively slender. . . . . *carmichaeli* Chop., p. 43  
Posterior legs shorter; posterior femora stouter... .. 12
- 13 Head presenting two very neat, narrow, yellow bands along the internal margin of the eyes. Genitalia of male long, feebly trilobate at apex.. *gracilipes* Sauss., p. 47  
Head with a very faint yellow band along the internal margin of the eyes. Genitalia short, trilobate.. . . . 13
- 14 Body stout and somewhat depressed.. *mitratus* Burm., p. 41  
Body more elongate and convex. . . . . *facialis* Walk., p. 46
- 15 Ovipositor of normal length. . . . . 15  
Ovipositor very short (5.5-6 mm.).. *guttiventris* Walk., p. 51  
*brunneri* Sauss., p. 53
- 16 Head black or brown, without any marking or with very short lines on the occiput.. . . . 16  
Head adorned with light bands on the occiput or between the ocelli. . . . . 17
- 17 Small species (length of body 10-11 mm.); blackish with fulvous legs... 18  
Legs of the same general colour as the body.. . . . 19
- 18 Pronotum with parallel sides; lateral field of elytra with widely separated veins. . . . . *blennius* (Sauss.), p. 55  
Pronotum slightly enlarged in front; lateral field of elytra with regularly spaced veins. . . . . *pallipes* Chop., p. 56
- 19 Posterior femora relatively long and slender... .. 20  
Posterior femora stouter..... . 22

- 20 Larger (length of body 15-16 mm.);  
posterior tibiae as long as the femora  
Smaller (length of body 11 mm.);  
posterior tibiae shorter than the femora... . . . . . *fletcheri* Chop., p. 49 21
- 21 Legs light brown; mirror of male a  
little longer than broad; 4 oblique  
veins... . . . . . *longipennis* Sauss., p. 48  
Legs rufous, all the femora blackish at  
apex; mirror of male as long as  
broad; 3 oblique veins. . . . . *bicoloripes* n. sp., p. 49 23
- 22 Colouration uniformly brown or black  
Colouration brownish; head black with  
a yellow spot along the eyes. . . . . *angustulus* Walk., p. 54
- 23 General colouration blackish; head  
black, shining..... . . . . *melanocephalus* Serv.,  
p. 53  
Uniformly chestnut-brown.. . . . *castaneus* Chop., p. 56
- 24 Head with a transverse yellow band  
between the ocelli. . . . . 27  
Head without transverse light band.. . . . 25
- 25 Head yellowish with three broad  
brown bands uniting on the rostrum *signifrons* Walk., p. 57  
Head adorned on the occiput with five  
light bands. . . . . 26
- 26 Very small (length of body 8.5 mm.);  
elytra of male with 4 oblique veins... *minimus* Chop., p. 63  
Larger (length of body 12 mm.); ovi-  
positor very short.. . . . . *brevecaudatus* nom. nov.,  
p. 65
- 27 Colouration uniformly light fulvous-  
brown; pattern of the head feebly  
marked. . . . . *flavus* (Chop.), p. 60  
Colouration varied with brown or  
blackish. . . . . 28
- 28 Blackish. . . . . 29  
Brown or testaceous varied with brown 30
- 29 Head black with a narrow luteous  
band.. . . . . *signipes* Walk., p. 65  
Head blackish with two transverse  
yellowish bands. . . . . *rehni* n. sp., p. 66
- 30 Veins of the lateral field of elytra  
regularly and feebly spaced.. . . . 31  
Veins of the lateral field of elytra dis-  
tant and strongly curved. . . . . *confirmatus* (Walk.), p. 58
- 31 Clypeo-frontal suture rather strongly  
angulate.. . . . . *lineiceps* Walk., p. 61  
Clypeo-frontal suture feebly curved... 32
- 32 Mirror longer than broad, non-divided *ehsani* n. sp., p. 64  
Mirror as broad as long, divided. .... *semiobscurus* n. sp., p. 67

## 21. *Gryllus bimaculatus* De Geer

1773. *Gryllus bimaculatus* De Geer, *Mém. Ins.*, 3, 521, pl. 43,  
fig. 4. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 22. San-  
drasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 544.

1877. *Liogryllus bimaculatus* Saussure, *Mém. Soc. Genève*, 25, 139, pl. 12 (X), figs. 6, 6a. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130. Chopard, 1933, *Rev. Suisse Zool.*, 40, 162. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 795.
1925. *Acheta bimaculata* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 509.

Rather large species; almost completely glabrous. *Colouration* typically entirely black with two yellow spots at base of the elytra. *Head* small. *Pronotum* feebly narrowing in front. *Legs*: Posterior femora rather strong, black with inferior margin reddish at base; posterior tibiae armed with 5 or 6 rather long spines, on each margin; supero-internal apical spur as long as the median one. *Elytra* extending to the apex of abdomen; wings much longer than the elytra (a micropterous condition is rarely found).

♂: Mirror small, lozenge-shaped, longer than wide, divided behind the middle by a curved vein; first chord united to the diagonal vein by 1 to 3 veinlets. Genitalia plain, formed of a rather large piece divided into three acute lobes.

♀: *Ovipositor* a little longer than the posterior femora, with apical valves lanceolate, acute.

*Length* of body 21–30 mm.; pronot. 4–4.5 mm.; length with wings 30–42 mm.; post. fem. 12–15 mm.; elytra 13.5–21 mm.; ovipositor 12.5–19.5 mm.

This species is markedly variable in size, and it also presents rather numerous variations in the colouration; the elytra may lack the characteristic yellow spots or present a rufo-testaceous colour; the legs may be of a rufous colour instead of black; the most remarkable variety is entirely rufous-brown with testaceous elytra.

It must be widely distributed all over the Indian region. It is one of the most common Gryllids in Africa and tropical Asia. It has been mentioned as destructive to potato plants in Khandesh, Dehra Dun.

*Range*.—WEST PAKISTAN: Lyallpur (B.M.); Rawalpindi (I.M.); Dadia (P.M.). INDIA: Kashmir: Gandharal (short-winged variety, B.M.); Gilgit (I.M.). United Provinces (Uttar Pradesh): Sat Tal, 4,500 ft. (I.M.); Dehra Dun (Phil. M.). Central Provinces (Madhya Pradesh): Hoshangabad (I.M.). West Bengal: Calcutta; Kurseong (B.M.); Sukna, 5,000 ft. (I.M.); Darjeeling (P.M.). Bombay (B.M.). Mysore: Bangalore (I.M.); Shimoga (P.M.). Madras: Palni Hills (B.M.); Kodaikanal (I.M.); Trichinopoly; Nilgiris; Coonoor; Pondicherry; Shembaganur (P.M.); Coimbatore (Phil. M.). Bihar: Chakradharpur (I.M.). Andaman Islands: Port Blair (I.M.). CEYLON: Kandy; Maha-Illupakama (Col. M., B.M.);

Colombo; Mousakande; Gammaduwa; Murunken; Illipukaduwai (Sandrasagara). BURMA: Pegu Yomas (I.M.). MALAYA: Kuala Lumpur. Singapore. Kelantan: Tebing Tiggi (Sel. M.).

## 22. *Gryllus domesticus* Linné

1758. *Gryllus Acheta domesticus* Linné, *Syst. Nat.* (éd. X), 1, 428.  
 1871. *Gryllus transversalis* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 6.  
 1877. *Gryllus domesticus* Saussure, *Mém. Soc. Genève*, 25, 173.

Medium size; rather depressed, pubescent. General *colouration* light fulvous or testaceous. *Head* brown above with two wide transverse testaceous bands. *Pronotum* adorned with two large brown spots; lateral lobes testaceous with a brown band in the superior part. *Elytra* extending to the apex of abdomen or a little shorter; wings usually longer than the elytra, rarely of the same length or a little shorter. *Legs* yellowish, with a few brown spots, pubescent; posterior tibiae armed with 6-7 spines. ♂: Mirror as long as wide, almost rounded, divided a little behind the middle; 4-5 oblique veins. *Genitalia* presenting a large superior truncated piece and two rather long inferior ones, feebly curved downwards (fig. 4). ♀: Elytral veins oblique, very regular. *Ovipositor* long, acute.

*Length* of body 16-20 mm.; pronot. 3.6-3.8 mm.; post. fem. 9-13 mm.; elytra 9-12.5 mm.; ovipositor 11-14 mm.

This species is the common house-cricket, which is cosmopolitan and anthropophilous. Very few localities are known in India; yet it must be common in certain towns, chiefly in the harbours.

*Range*.—W. PAKISTAN: Karachi (P.M.). INDIA: Kashmir: Srinagar; N.W. Himalayas, 6,000 ft. (P.M.). United Provinces (Uttar Pradesh): Dehra Dun (P.M.). W. Bengal: Calcutta (V.M.). Bombay (type of *transversalis*, B.M.). Malabar (Kerala) (P.M.).

It seems rather surprising that this species has been recorded as a pest of crops in Pakistan (Ahmad and Ullah, 1949, Proc. 1st Pakistan Sci. Conf., Lahore, pt. III).

## 23. *Gryllus quadrimaculatus* Saussure

(Fig. 22)

1877. *Gryllus quadrimaculatus* Saussure, *Mém. Soc. Genève*, 25, 172. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 796.

Rather large and stout. *Colouration* dark rufous-brown; with four white, opaque spots on the elytra, two at the base



and two in the external angle of the mirror. *Head* with four weak light bands on the occiput. *Pronotum* somewhat depressed, with posterior margin straight; lateral lobes a little darker than the disk, with straight inferior margin, rounded posterior angle. *Abdomen* dark brown; epiproct bordered with yellowish. *Cerci* yellowish inside at base. *Legs* of the same colour as the body. Anterior tibiae presenting a large, oval tympanum on the external face and a small, round, internal one. Posterior femora stout. rufous at base; tibiae

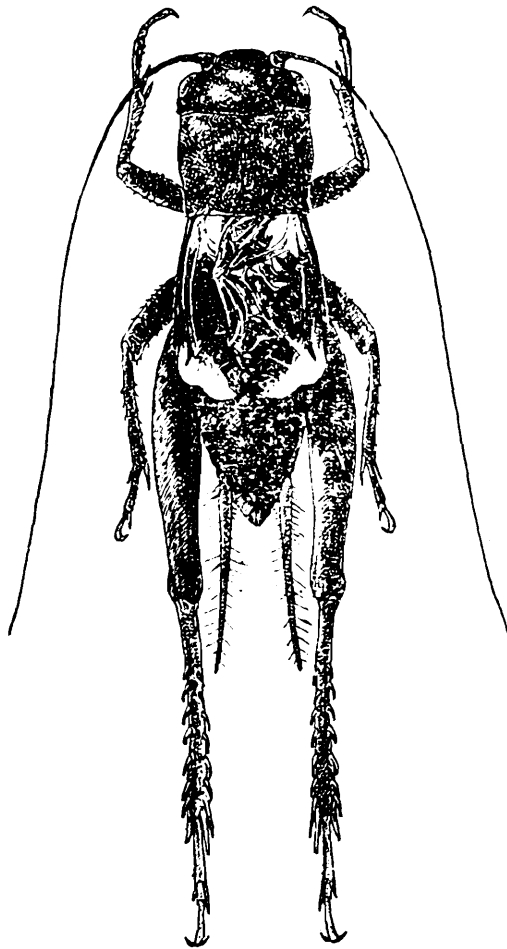
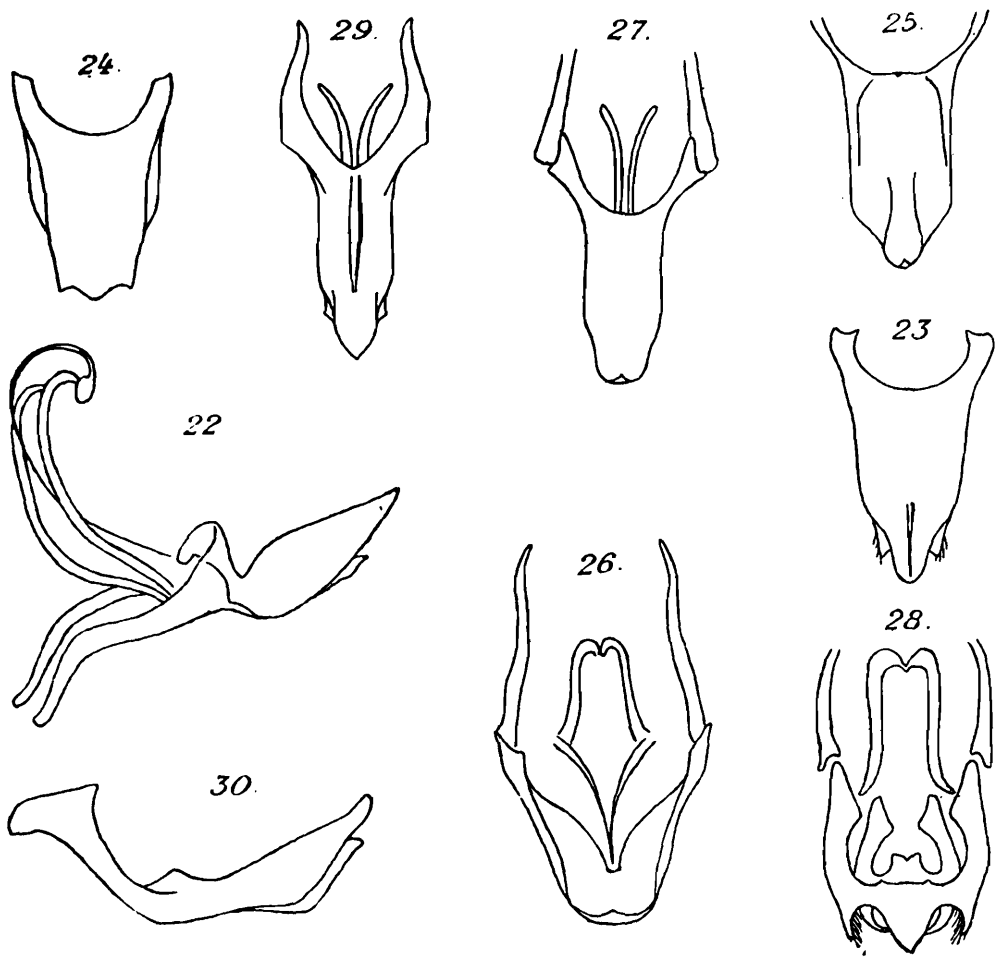


FIG. 21. *Gryllus quadrimaculatus* Sauss., ♂ ( $\times 1.5$ ).

armed with 6–7 spines on each superior margin; posterior metatarsi armed above with two rows of small denticles. ♂: *Head* big; pronotum somewhat enlarged in front. *Elytra* extending to the apex of 4th abdominal tergite; mirror small, oval, a little reticulated in the posterior part; 2 or 3 oblique veins; chords united at base; apical field short; lateral field presenting 6 veins. Wings short. *Genitalia* formed of a single piece, acute at apex (fig. 22). ♀: *Pronotum* with

parallel sides. *Elytra* extending to the apex of 3rd abdominal tergite, with more or less oblique internal margin, rounded apex; dorsal field presenting 5 rather regular veins; lateral field with 5 feebly curved, regularly spaced veins. *Ovipositor* as long as posterior femora; apical valves narrow, acute at apex.

*Length* of body ♂ 26 mm., ♀ 24–27.5 mm.; pronot. ♂ 5.8 mm., ♀ 5.5–6.5 mm.; post. fem. ♂ 16–17.5 mm., ♀ 16 mm.; elytra ♂ 10–10.5 mm., ♀ 6.2–7 mm.; ovipositor 16–19.5 mm.



FIGS. 22 to 30. Genitalia of *Gryllus*: 22. *G. quadrimaculatus*, side view. 23. *G. testaceus*. 24. *G. mitratus*. 25. *G. oceanicus*. 26. *G. carmichaeli*, inferior part. 27. *G. himalayanus*. 28. *G. facialis*. 29. *G. gracilipes*. 30. *id.*, side view.

This species, well characterized by its colouration, seems to be scarce.

*Range*.—INDIA: Rajputana (Rajasthan): Genji (P.M.). Mysore (P.M.). Madras: Madura (P.M.); Chittoor Dist.; Horsleykoda, 4,000 ft. (P.M.); Coromandel coast (I.M.); Krusadai

Island; Gulf of Manaar (P.M.). This species is also recorded from ANNAM.

1900. Var. *apicalis* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 796.

Female variety differing from the type in the elytra presenting only two apical white spots.

Range.—INDIA: Madras: Madurai (M.M. type).

## 24. *Gryllus testaceus* Walker

(Fig. 23)

1869. *Gryllus testaceus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 38.  
Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130. Chopard,  
1933, *Rev. Suisse Zool.*, 40, 162. Chopard, 1935, *Ann.*  
*Mag. nat. Hist.*, (10) 16, 285.

1877. *Gryllus chinensis* Saussure, *Mém. Soc. Genève*, 25, 153,  
pl. 12 (IX), fig. 4 (non Weber). Chopard, 1924, *Rec.*  
*Ind. Mus.*, 26, 183.

1936. *Gryllulus testaceus* Chopard, *Ceylon J. Sc.*, (B) 20, 23.  
Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 544.

Large species. *Colouration* a very uniform rather light testaceous. Body and legs rather pubescent. *Head* almost without ornament, presenting only a very feeble lighter band along the eyes; lateral lobes of the *pronotum* a little darker than the disk in its superior part, yellowish in the inferior half. *Legs* of the same colour as the body; posterior femora long; posterior tibiae armed with 5-6 or 6-7 spines on the superior margins. ♂: *Elytra* extending to the apex of abdomen; wings as long or a little longer than the elytra. Mirror broader than long, rounded, divided in the middle by a curved vein; 4 long oblique veins and 1 or 2 small ones in the angle of the stridulating vein; *Sc.* bearing 6 branches. *Genitalia* of the same type as in the preceding species, the large superior part with sinuated sides, and feebly acute at apex (fig. 23).

♀: *Elytral veins* oblique, regularly distant. *Ovipositor* as long as the body, with apical valves small, acute.

*Length* of body 21-28 mm.; length with wings 31-38 mm.; pronot. 4-6 mm.; post. fem. 12-20 mm.; ovipositor 19-25 mm.

Range.—INDIA: United Provinces (Uttar Pradesh): Dehra Dun. Bihar: Pusa (B.M.). West Bengal: Calcutta (I.M.); Darjeeling. Orissa: Barkul (I.M.); Barkuda Island (P.M.). Mysore: Shimoga; Nedungadu (P.M.); Bangalore; Singla, 3,000 ft. Madras: Trichinopoly; Coimbatore (Phil. M.). Travancore (Kerala): Mahé (P.M.); Chalakudi (I.M.). Andaman Islands: Port Blair (I.M.). CEYLON: Puttalam; Peradeniya (Col. M.). BURMA: Toungoo (Phil. M.). MALAYA:

Perak: Jor Camp; Taiping; Tapah (Sel. M., P.M.). Pahang: Kuala Tahan; Lubok Tamang; Kuala Lumpur (Sel. M.). SUMATRA. JAVA. BORNEO; also in INDO-CHINA.

This species is widely distributed in the Indo-Malayan region.

## 25. *Gryllus mitratus* Burmeister

(Fig. 24)

1838. *Gryllus mitratus* Burmeister, *Hanb. Ent.*, 2, 734. Saussure, 1877, *Mém. Soc. Genève*, 25, 154. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 795. Chopard, 1924, *Rec. Ind. Mus.*, 26, 183. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 509. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130. Chopard, 1933, *Rev. Suisse Zool.*, 40, 162. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285. Chopard, 1936, *Ceylon J. Sc.*, (B) 20, 24. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 544.

Very close to the preceding, from which it differs in its somewhat smaller size and a darker *colouration* with two very neat, narrow, yellow bands along the internal margin of the eyes; face usually yellow. Male presenting 4 sinuated oblique veins; mirror small, oval, as long as broad. *Genitalia* of the same type as those of *testaceus* but wider at apex (fig. 24).

*Length* of body 18.5–26 mm.; length with wings 20–41 mm.; pronot. 3–4 mm.; post. fem. 12–17 mm.; elytra 13–20 mm.; ovipositor 15–24.5 mm.

The small individuals, with well-defined pattern of the head, are easy to distinguish from *testaceus*; but the larger ones often present a less dark colouration, with rather weak yellow bands along the eyes, and they look rather like *testaceus*. There may possibly exist hybridization between both species.

*Range*.—INDIA: United Provinces (Uttar Pradesh): Dehra Dun (I.M.). Bihar: Pusa (I.M.); Pachrukhi (Phil. M.). W. Bengal: Calcutta (I.M.); Darjeeling; Sukna (P.M.). Assam: Khasi Hills (I.M.); Ledo (Phil. M.). Orissa: Balasore (P.M.); Balighai (I.M.); Barkuda Island (P.M.). Mysore: Valparai (P.M.). Madras: Madurai (P.M.). Bhutan. CEYLON: Dujatalawa (P.M.); Kandy; Patalam; Peradeniya (Col. M.). MALAYA: Perak: Jor Camp; Taiping. Pahang: Kuala Tahan; Lubok Tamang. Kuala Lumpur. Johore: Gumong Pulai (Sel. M.).

This species is even more widely spread than the preceding, being known from Tibet, Japan and the Philippine Islands to the Malay Archipelago. It has been reported as a pest of rice and other crops.

## 26. *Gryllus validus* n. sp.

*Holotype*.—Bombay: Sangli, ♀ (Brunner's collection, Vienna Museum).

A large and stout species. *Head* big, round, black above with a small yellow line behind the eye, extending narrowly along the internal margin of the eye. Face short, strongly convex, black, shining; base of the mandibles rufous; cheeks yellow; clypeo-frontal suture feebly convex. Palpi yellowish. *Pronotum* a little widening in front, with anterior margin feebly concave, narrowly yellowish; disk feebly convex, blackish with a few rufous spots; lateral lobes widely outlined with yellowish. *Abdomen* blackish, finely pubescent. *Legs* rufous-brown, pubescent; anterior tibiae with external tympanum oval, narrow; internal one very small. Posterior femora short, thick, striated with brown on the external face; posterior tibiae armed with 7 strong spines on each margin; supero-internal apical spur a little longer than the median one; metatarsi armed with 6 denticles on each superior margin. *Elytra* extending to the apex of 5th abdominal tergite, dark brown with a yellowish humeral band; veins oblique, regularly spaced; reticulation formed of long, narrow, regular cells; lateral field rufous with 5 close veins and 5 branches of the *Sc*. Wings very short. *Ovipositor* long and slender, with apical valves very narrow. Male unknown.

*Length* of body 26 mm.; pronot. 5.5 mm.; post. fem. 17 mm.; post. tib. 12.5 mm.; ovipositor 21 mm.

This large species is close to *mitratus*, but much larger and stouter, with shorter elytra and posterior femora, clypeo-frontal suture more convex and pattern of the head less striking.

## 27. *Gryllus oceanicus* Le Guillou

(Fig. 25)

1841. *Gryllus oceanicus* Le Guillou, *Rev. Zool.*, 293. Chopard 1931, *Bull. Raffles Mus.*, No. 6, 130.

*Size* medium. *Colouration* brown or blackish, very feebly pubescent, with head and pronotum shining. *Head* almost without ornaments, presenting only two small yellowish lines behind the eyes. *Pronotum* unicolorous. *Legs* brown, feebly pubescent; posterior tibiae armed with 6–7 spines on each superior margin; posterior metatarsus long and slender. *Elytra* extending to the apex of abdomen; wings caudate.

♂: Mirror a little longer than broad, divided by a curved vein;

3 oblique veins; lateral field with close veins, *Sc.* bearing 5 branches. *Genitalia* narrowing and feebly curved at apex (fig. 25). ♀: Elytral veins oblique, regularly spaced; areolae formed by the transverse veinlets almost square. *Ovipositor* long, with apical valves narrow, lanceolate with straight margins.

*Length* of body 18–22 mm.; pronot. 3·8–4·5 mm.; post. fem. 10·5–13 mm.; elytra 13–16 mm.; ovipositor 19 mm.

This species is remarkable by its shining appearance and, in most individuals, by the contrast between the blackish head and pronotum and the light brown elytra.

*Range*.—MALAYA: Perak: Sungai Telgah (Sel. M.).

A very common species in all the Oceanic Islands and in Australia, but becomes scarce in the Malay Archipelago and in the Peninsula.

## 28. *Gryllus carmichaeli* Chopard

(Fig. 26)

1928. *Gryllus carmichaeli* Chopard, *Rec. Ind. Mus.*, 30, 7, figs. 11, 12.

*Size* medium. *Colouration* of head and pronotum blackish, contrasting with the testaceous elytra. *Head* round, almost black, having only a narrow yellow stripe along the eyes. *Pronotum* transverse, very slightly widening in its anterior third; anterior and posterior margins almost straight; disk weakly convex, blackish, a little pubescent; lateral lobes spotted with yellow near the anterior angle, their inferior margin slightly ascending backwards. *Abdomen* blackish, pubescent. *Legs* rufous-brown; anterior tibiae perforated with a large external tympanum and a very small internal one; posterior tibiae armed with 6 spines on each superior margin.

♂: *Elytra* extending to the apex of abdomen; mirror rather small, obliquely transverse, undivided; chords strongly curved, the first united to the mirror by three small veins, and to the diagonal vein by a veinlet a little beneath the middle; 4 oblique veins, somewhat thickened at base, the first one broken, the others only sinuated; apical field short, with large areas; lateral field blackish, presenting 6 parallel veins; *Sc.* bearing two stems. Wings abortive. *Genitalia* formed of a large superior piece, rounded at apex (fig. 26).

♀: *Elytra* extending only to the posterior margin of the 3rd abdominal tergite, widely rounded at apex, overlapping on the median line; dorsal field with rather thick veins, forming

two groups, one composed of the *R* and its sector, and the other of three parallel, slightly curved veins; reticulation rather wide and irregular; lateral field black, with 6 veins; *Sc.* furcate. *Ovipositor* long, with small, lanceolate apical valves.

*Length* of body 18–19 mm.; pronot. 5 mm.; post. fem. 14.5 mm.; elytra ♂ 12 mm., ♀ 5.5 mm.; ovipositor 15 mm.

*Range*.—INDIA: W Bengal; Darjeeling Dist., Sukna (type, I.M.).

## 29. *Gryllus himalayanus* Chopard

(Fig. 27)

1928. *Gryllus himalayanus* Chopard, *Rec. Ind. Mus.*, 30, 8, figs. 13, 14.

Rather large, black. *Head* black, shining, with a yellow spot around the ocelli, the lateral ones extending up to the eye. *Pronotum* slightly widening in front, black, with a golden-rufous, silky pubescence; lateral lobes dark brown with inferior margin slightly ascending backwards. *Abdomen* covered with a silky pubescence. *Cerci* long, rufous. *Legs* rufous, hairy. Anterior tibiae presenting a large, oval, external tympanum and a very small internal one. Posterior femora rather long; tibiae bearing 6 spines on each margin; inferior apical spurs of the same length; the two large internal spurs long, especially the median one, pubescent; the middle external spur twice as long as the inferior one, superior one slender, like the last spine, but a little longer; posterior metatarsi long, a little compressed, armed with 5–6 denticles above.

♂: *Elytra* brown, extending to a little beyond the middle of the abdomen, rounded at apex; mirror small, nearly apical, somewhat oblique, divided in the middle; apical field reduced to a few cells; diagonal vein long, straight; chords parallel, feebly curved; 5 oblique veins, the first two strongly sinuate, the other straight, somewhat confused; anal field short, reticulated; lateral field presenting 7 parallel, feebly curved veins; *Sc.* furcate. *Genitalia* of the same type as the preceding, but very narrow (fig. 27).

♀: *Elytra* a little shorter than those of the male, with parallel margins and truncated apex; dorsal field presenting 3 almost straight veins and 3 branches of the cubital; reticulation close and rather irregular; lateral field as in male. *Ovipositor* rather long, straight, with apical valves small and acute.

*Length* of body 18 mm.; pronot. 5 mm.; post. fem. 13.5 mm.; elytra ♂ 7 mm., ♀ 5.5 mm.; ovipositor 14 mm.

*Range*.—INDIA: W. Bengal; Darjeeling Dist.; Kurseong, 5,000 ft.; Ghumti (types, I.M.).

### 30. *Gryllus triangulifer* n. sp.

*Holotype*: Madras: Chittoor Dist., Horsleykonda, 3,000–4,000 ft. (E. Barnes, 11–16.IX.1923), ♂ (Paris Museum).

*Size* rather large. *Colouration* rufo-testaceous. *Head* rufous-brown, shining, presenting a feeble yellow band along each eye, extending around the lateral ocelli. Face rufous with a feebly marked yellow line beneath the anterior ocellus; clypeo-frontal suture feebly angulate. *Pronotum* with anterior and posterior margins nearly straight, parallel sides; disk almost flat, rufous-brown, finely pubescent; lateral lobes of the same colour as the disk. *Abdomen* light rufous-brown, pubescent. *Legs* a little lighter than the body, pubescent. Posterior femora rather short and thick; posterior tibiae armed with 6 external, 7 internal spines. *Elytra* extending to the apex of the 6th abdominal tergite, rounded at top; mirror very much wider than long, triangular, divided by a curved vein; 6 oblique veins; diagonal vein very long, rather strongly incurved towards the first chord; apical field very short, presenting only two veins and a few large cells; lateral field presenting 3 regularly spaced veins and 3 branches of the *Sc*. Wings very short. *Genitalia* similar to those of *himalayanus*.

*Length* of body 19 mm.; pronot. 3.5 mm.; post. fem. 12 mm.; elytra 9.5 mm.

Close to the preceding, this species is distinguished by the shape of the mirror.

### 31. *Gryllus flavovittatus* Chopard

1928. *Gryllus flavovittatus* Chopard, *Réc. Ind. Mus.*, 30, 10, fig. 17.

♀: Rather large, colour brown, pubescent. *Head* rounded, shining, but finely pubescent; occiput and vertex dark brown, with a narrow yellow band along the internal margin of the eyes, extending to the lateral ocelli; a very narrow, scarcely visible, yellow line between the ocelli; face brown, shining. Antennae and palpi brown. *Pronotum* very slightly enlarged in front, with anterior and posterior margins nearly straight; disk pubescent, rufous-brown, with a large, irregular dark spot in the middle; lateral lobes concolorous, with inferior margin



feebly ascending backwards. *Abdomen* brown, very pubescent. *Legs* dark brown. Anterior tibiae bearing a large external tympanum and a small round internal one. Posterior femora rather short and thick, striated with brown on their external face; tibiae armed with 6 rather strong spines on each superior margin; apical spurs rather strong, pubescent, the superior internal one shorter than the median; metatarsi a little compressed, armed with 6 denticles on each side. *Elytra* extending to the posterior margin of the second abdominal tergite only, contiguous along the median line, with internal margin strongly oblique; almost black with a very conspicuous yellow humeral band; dorsal field presenting 4 somewhat irregular, sinuate veins; transverse veinlets few and irregular; lateral field high, black, with 6 equidistant veins; *Sc.* plain. *Ovipositor* rather long, straight, with small, acute apical valves. Male unknown.

*Length* of body 18.5 mm.; pronot. 4 mm.; post. fem. 11 mm.; elytra 4.5 mm.; ovipositor 12 mm.

Close to the female of *G. carmichaeli*, but more slender, elytra more obliquely truncated at their internal margin and presenting a very conspicuous yellow band.

*Range*.—INDIA: Madras: Nilgiri Hills (type, I.M.).

### 32. *Gryllus facialis* Walker

(Fig. 28)

1871. *Gryllus facialis* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 5.

1877. *Scapsipedus hastatus* Saussure, *Mém. Soc. Genève*, 25, 245.

A rather large species. *Colouration* brown above, testaceous beneath. *Head* dark chestnut-brown, with a very faint yellow band along the internal margin of the eyes. Face chestnut-brown in the superior part to the middle of the clypeus, yellow beneath; clypeo-frontal suture feebly angulate; anterior ocellus surrounded with yellow, this yellow spot followed beneath by a short vertical band of the same colour; cheeks yellow. *Pronotum* feebly convex above, blackish-brown, with a fine greyish pubescence; posterior margin sinuated; lateral lobes presenting a wide yellowish band in their inferior part, the extreme margin brown. *Abdomen* brown above, yellowish beneath. *Legs* fulvo-testaceous, with brown spots, pubescent. Posterior femora rather short and thick; posterior tibiae armed with 6 spines on each margin. *Elytra* extending to the apex of abdomen, brown with lateral field yellowish, translucent, presenting a brown humeral band.

♂: *Elytral* mirror rather small, as long as wide, almost regularly rounded, divided in the middle by a curved vein; 4 oblique veins; 2 small veinlets between the first chord and the diagonal vein; apical field rather long, presenting 5 veins and a regular reticulation formed of very long cells; lateral field with 6 very close veins; *Sc.* bearing 3 parallel branches. *Genitalia* with superior bridge trilobate, the median lobe being triangular, wider than the lateral ones (fig. 28).

♀: *Elytral venation* very regular, with lengthened reticulation. Wings caudate. *Ovipositor* long, slender, with narrow, very acute apical valves.

*Length* of body 20–23 mm.; length with wings 28 mm.; post. fem. 12–12.5 mm.; elytra ♂ 10–10.5 mm., ♀ 12 mm.; ovipositor 17–21 mm.

*Range*.—INDIA: Himalayas, without exact locality (type of *hastatus*, V.M.). Bombay (Maharashtra) (type, B.M.): Salsette Island; Andheri (B.M.); Belgaum (V.M.). Madras: Coimbatore (Phil. M.).

### 33. *Gryllus gracilipes* Saussure

(Figs. 29, 30 and 33)

1877. *Gryllus gracilipes* Saussure, *Mém. Soc. Genève*, 25, 160, pl. 12 (X), fig. 4.

A large species, rather close to *mitratus*, but with more slender general shape and, above all, longer posterior legs. *Colour* of head and pronotum brown; the former presenting a yellowish spot between the ocelli and the eyes and a testaceous band between the eye and base of the mandibles; face and cheeks yellowish; occiput presenting four weak furrows, covered with a fulvous pubescence. *Pronotum* feebly narrowing in front. *Abdomen* brown above, yellowish beneath. *Legs* of the same colour as the body. Posterior legs long with relatively slender femora (their length is four times the greatest width, whereas it is only three times in *mitratus*); posterior tibiae as long as the femora, pubescent, armed with 6–7 pubescent spines; posterior tarsi very pubescent, the metatarsus very long, armed with 5–6 denticles above. *Elytra* testaceous-brown with a brown lateral band; mirror a little longer than broad, nearly round; 4 oblique veins; apical field rather large, presenting 4 veins and a rather regular reticulation; lateral field presenting 5 close veins and 5 branches of the *Sc.* Wings long. *Genitalia* of the male of the same type as *mitratus*, feebly trilobate at apex, with strongly convex lateral margins (figs. 29, 30 and 33). *Ovipositor* long, slender, with acute apical valves.

*Length* of body 20–22 mm.; length with wings 34–36 mm.; pronot. 4–4·7 mm.; post. fem. 16–18·5 mm.; elytra 13–15 mm.; ovipositor 16–18 mm.

*Range*.—INDIA: Central India (type, G.M.). Assam: Ledo (Phil. M.).

According to Saussure, this species is also found in EAST AFRICA.

### 34. *Gryllus longipennis* Saussure

(Figs. 31, 32)

1877. *Gryllus longipennis* Saussure, *Mém. Soc. Genève*, 25, 161, pl. 12 (X), fig. 3.

*Size* rather small feebly narrowing in front. *Colouration* fulvo-testaceous or brown. *Head* rather small, dark brown or black, with vertex and face chestnut-brown; occiput presenting four very feebly rufous lines. *Pronotum* dark brown, more or less marked with rufous; lateral lobes with inferior margin slightly ascending backwards, with anterior angle more or less spotted with testaceous. *Legs* a little lighter than the body, fulvo-testaceous; posterior femora rather long and slender; posterior tibiae armed with 6–7 spines on each margin. *Elytra* extending to the apex of abdomen, rufo-testaceous; lateral field translucent with a rufous-brown band along the superior edge; dorsal field feebly tinged with yellowish at base. ♂: Mirror a little longer than broad, in the shape of an oblique parallelogram, rounded in front, divided by a feebly curved vein a little behind the middle; 4 oblique veins; apical field rather long, presenting 4 veins and a rather regular reticulation, formed of long, narrow areolae; lateral field presenting 6–7 veins and 3–4 branches of the *Sc*. Wings very long. *Genitalia* of the same type as *G. quadrimaculatus*, elongated, narrow, agulate at apex with a very feeble tooth on each margin before the extremity (figs. 31, 32).

♀: Elytra with 3 oblique veins and 3 branches of the *Cu*. in the dorsal field; reticulation rather irregular and formed of long, very narrow cells; lateral field as in the male. *Ovipositor* rather long, straight, with small, acute apical valves.

*Length* of body 15–17·5 mm.; length with wings 24–26·5 mm.; post. fem. 12–13 mm.; elytra 11–11·5 mm.; ovipositor 10 mm.

This species looks somewhat like a small *gracilipes* but, besides the much smaller size, the posterior femora are not so slender. The type of the species is lost.

*Range*.—INDIA: United Provinces (Uttar Pradesh): Dehra

Dun (B.M.). Bihar: Pusa (B.M.). Bombay: Salsette Island; Andheri (B.M.). CEYLON: Dujatalawa (P.M.).

### 35. *Gryllus fletcheri* Chopard

1935. *Gryllus fletcheri* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 285 (♀ non ♂).

Medium size. *Colouration* rufous-brown, rather strongly pubescent. *Head* big, rounded; occiput rufous, without any ornament; face yellowish; ocelli big, yellow. *Pronotum* slightly enlarged in front, with anterior margin feebly concave, posterior one nearly straight; disk convex, rufous, with two large piriform impressions; lateral lobes with yellowish inferior part. *Abdomen* brown; subgenital plate rather wide, feebly notched at apex. *Legs* pubescent; anterior and median femora rufous-yellow at base, with light brown apical half; anterior tibiae with a large, oval, external tympanum, the internal face being only depressed; metatarsus equalling the third joint of the tarsus. Posterior femora rather long and feebly swollen, their external face light brown with a ring before the apex and the knee yellowish; tibiae much shorter than the femora, armed with 6 spines on each margin; supero-internal apical spur nearly equal to the median one, both strongly pubescent; posterior metatarsi long, armed with 7-8 denticles on each margin. *Elytra* brownish, reaching nearly to the apex of abdomen; dorsal field with veins slightly oblique, rather projecting, 4 in number, the 1st and the 4th furcate; transverse veinlets few in number, irregular; lateral field with 5 equally distant veins. Wings short. *Ovipositor* moderately long, rather slender, with apical valves very acute, the superior ones feebly arcuate.

*Length* of body 11 mm.; pronot. 2.2 mm.; post. fem. 8.5 mm.; post. tib. 6 mm.; elytra 6.5 mm.; ovipositor 8.5 mm.

This small species seems rather close to the preceding but it is difficult to place it exactly without knowing the male (the male described certainly belongs to *Itaropsis tenella*).

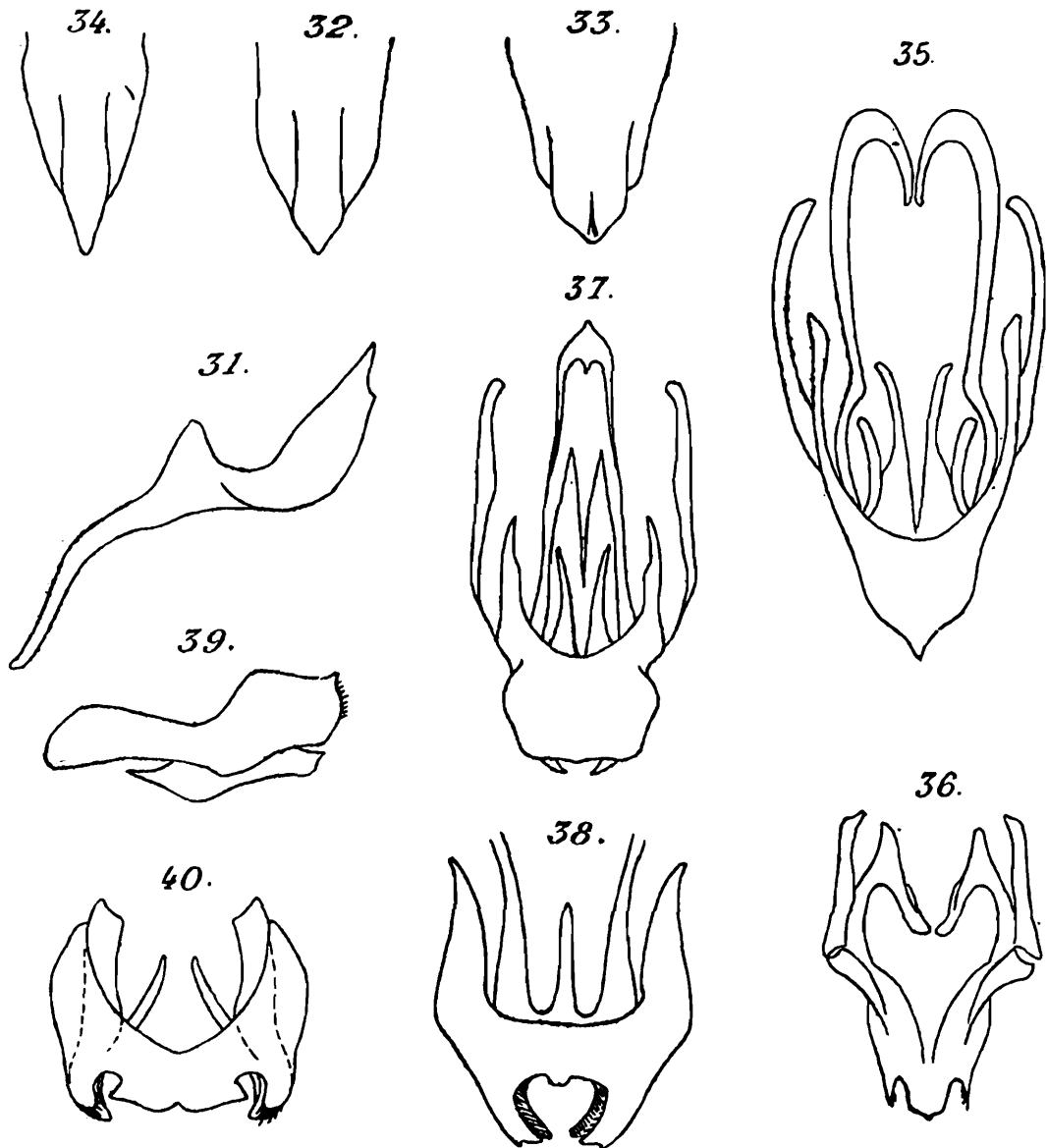
*Range*.—INDIA: Assam: Shillong, 5,000 ft. (type, B.M.).

### 36. *Gryllus bicoloripes* n. sp.

(Fig. 34)

*Holotype*: Burma: Kalaw, Southern Shan State, alt. 4,500 ft. (J. W. H. Rehn, 7.X.1937), ♂; *allotype*: same locality, ♀ (Academy of Natural Sciences, Philadelphia).

*Size* medium, rather slender. *Head* rather small, strongly convex above, blackish. *Face* convex, blackish-brown, shining; clypeo-frontal suture almost straight. *Antennae* blackish. *Maxillary palpi* dark brown at base, with two last joints whitish. *Pronotum* dull blackish, with parallel



FIGS. 31 to 40. Genitalia of *Gryllus*: 31. *G. longipennis*, side view. 32. *id.*, apex of superior part. 33. *id.*, of *G. gracillipes*. 34. *id.*, of *G. bicoloripes*. 35. *G. guttiventris*. 36. *G. brunneri*. 37. *G. melanocephalus*. 38. *G. blennus*. 39. *id.*, side view. 40. *G. signifrons*.

sides; disk feebly convex, the two usual impresses more or less rufous; lateral lobes blackish. *Abdomen* blackish above, yellowish beneath. *Legs* rufous, all the femora blackish at apex; anterior tibiae perforated with an oval external tympanum; internal one very small, round. Posterior femora

rather slender; tibiae as long as the femora, armed with 6 spines on each margin; posterior metatarsi long and slender.

♂: *Elytra* extending to the apex of abdomen, lighter in colour than the pronotum, shining; mirror as broad as long, nearly round; 3 oblique veins; diagonal and chords long, close to one another; apical field short, rounded at apex, presenting 3 veins and a reticulation formed of close, elongated cells; lateral field blackish, presenting 5 veins very close to one another; *Sc.* bearing 3 branches. Wings short. *Genitalia* of the *longipennis* type, but narrower (fig. 34).

♀: *Elytra* extending almost to the apex of abdomen (a little shorter in certain examples), rather light brown; dorsal field with 3 free veins and 3 branches of the *Cu.*, all of them oblique and regularly spaced; reticulation formed of rather regular, long cells; lateral field as in the male. Wings very short. *Ovipositor* rather long, straight, with apical valves lanceolate, acute with straight margins.

*Length* of body 15 mm.; pronot. 3.4 mm.; post. fem. 10.5–11 mm.; elytra ♂ 8 mm., ♀ 7.5 mm.; ovipositor 11.5 mm.

Close to *longipennis*; differing in the colouration of the legs, the broader mirror of the male; the elytra shorter in both sexes and the apical field shorter in the male.

### 37. *Gryllus guttiventris* Walker

(Fig. 35)

- 1871. *Gryllus guttiventris* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 6 (♂).
- 1871. *Gryllus configuratus* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 8 (♀). Chopard, 1 928, *Spol. Zeyl.*, 14, 198. Chopard, 1933, *Rev. Suisse Zool.*, 40, 162. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20; 24. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 544.
- 1871. *Gryllus ferricollis* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 6.
- 1900. *Gryllus quadririgatus* Bolivar (non Saussure), *Ann. Soc. ent. Fr.*, 68 (1899), 796. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 510.

Medium size; general shape rather short and depressed. *Colouration* more or less dark brown, finely pubescent. *Head* blackish above with 6 short, light lines on the occiput; frontal rostrum short and wide; face blackish or dark brown; clypeo-frontal suture feebly angulate; cheeks and mandibles rufous. *Pronotum* strongly transverse, with almost straight anterior and posterior margins; parallel sides, disk nearly flat, rufous

more or less spotted with brown, sometimes almost completely dark brown; lateral lobes blackish. *Legs* blackish, very pubescent; posterior femora short and thick, feebly striated with brown; posterior tibiae armed with 6 strong spines on each margin; apical spurs long, the supero-internal as long as the median; metatarsus long, armed above with 6 denticles on each margin. ♂: *Elytra* extending almost to the apex of abdomen, more or less dark brown, shining; mirror as broad as long, oblique, divided behind the middle by a curved vein; 4 or 5 oblique veins; apical field rather long, presenting 4 veins and a very regular reticulation, composed of almost square cells; lateral field presenting 6 close veins and two branches of the *Sc*. Wings as long or a little longer than the elytra. *Genitalia* formed of a large piece with sinuated sides, ending in a small, blunt point (fig. 35). ♀: *Elytra* and wings of the same length as in the male. Veins of the dorsal field of elytra presenting 4 free veins and 3 branches of the *Cu.*, all of them feebly oblique and regularly distant; areolae long and narrow, regular; lateral field blackish, with 6 veins and the *Sc*. bearing one branch. *Ovipositor* rather long, straight; apical valves narrow, acute.

*Length* of body 13.5–17.5 mm.; length with wings, 20–24 mm.; pronot. 3.3–5 mm.; post. fem. 9–10 mm.; elytra 8.5–9 mm.; ovipositor 7.5–9 mm.

*Range*.—INDIA: Bombay (type, B.M.): Salsette Island; Andheri. Goa: Marmagao Bay (I.M.). Mysore: Shimoga; Nedungadu (P.M.). Travancore and Cochin (Kerala): Malabar; Pattambi (P.M.); Cochin State; Parambikulam. Bihar: Pusa (B.M.); Kierpur (P.M.). West Bengal: Calcutta; Manbhum (I.M.). Orissa: Balasore (P.M.). Madras: Pattamoi; Madura (I.M.); Pondicherry; Nilgiris (P.M.); Coimbatore (Phil. M.). CEYLON: Colombo; Peradeniya; Battanamulla; Murunkan; Dujatalawa (Col. M.); Vairiniya; Ratnapura (B.M.). BURMA: Mulmein; Rangoon (P.M.).

This species seems rather widely distributed in the south of the Oriental region but its distribution is not exactly known.

*Ssp. obscurus, nova*.—*Holotype*: Ceylon: Vairiniya, ♂ (British Museum). Differing from the type in the very dark, blackish colouration and in some details of the elytral venation: mirror much broader, one and a half times as wide as long; apical field short, rounded at top, with very narrow, elongate cells. Wings very short. The *genitalia* present exactly the same shape as in the type. Among the numerous examples of this species which I have seen, two only present the characters of this subspecies.

### 38. *Gryllus brunneri* Saussure

(Fig. 36)

1877. *Gryllus brunneri* Saussure, *Mém. Soc. Genève*, **25**, 170.  
 Chopard, 1924, *Rec. Ind. Mus.*, **26**, 183. Chopard,  
 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 285.

Close to the preceding in its general shape and colouration. *Head* black above, with a rufous tint on the occiput and six yellowish lines; clypeo-frontal suture rather strongly angulate, extending to the level of the inferior margin of antennal sockets. ♂: *Elytra*: Mirror scarcely wider than long, almost round; chords feebly curved; 7 oblique veins, undulated, very regularly spaced; apical field rather short, with 4 veins; lateral field with 6 veins, 3 of which are branches of the *Sc*. Wings of variable length. *Genitalia* trilobate at apex (fig. 36). ♀: *Ovipositor* very short, with apical valves flattened, blunt at apex.

*Length* of body 15–17 mm.; length with wings 21 mm.; post. fem. 9–9.5 mm.; elytra 9–10 mm.; ovipositor 5.5–6 mm.

*Range*.—INDIA: Himachal Pradesh: Nalagarh. United Provinces (Uttar Pradesh): Rampore Chaka; Bijnor Dist. (I.M.). Orissa: Barkuda Island (I.M.). Gujrat: Kathiawar; Dwarka; Beyt (P.M.). Central Provinces (Madhya Pradesh): Chikalda (B.M.). Madras: Coimbatore (Phil. M.). EAST PAKISTAN: Bangara (I.M.).

This species, originally described from Morocco, is almost cosmopolitan in the tropical regions.

### 39. *Gryllus melanocephalus* Serville

(Fig. 37)

1839. *Gryllus melanocephalus* Serville, *Ins. Orth.*, 342 (non Saussure, 1877).  
 1869. *Gryllus concisus* Walker, *Cat. Derm. Salt. Br. M.*, **1**, 34 (♀).  
 1869. *Gryllus conscitus* Walker, loc. cit., 35. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 285.  
 1877. *Gryllus niger* Saussure (non Harris), *Mém. Soc. Genève*, **25**, 164.

Medium size. *Colouration* black, shining with a very fine, silky, fulvous pubescence. *Head* black with a testaceous spot round the ocelli; face rufous. Palpi whitish-testaceous. *Pronotum* blackish above, with anterior margin narrowly ferruginous; lateral lobes black, sometimes with a testaceous spot in the anterior angle. *Abdomen* blackish above, testaceous beneath. *Legs* blackish, pubescent; posterior femora



moderately swollen; posterior tibiae armed with 5-6 spines on each margin. ♂: *Elytra* as long as the abdomen, fulvo-testaceous with a pale lateral stripe; mirror transverse, rounded in front, divided behind the middle by a curved vein; 3 or 4 oblique veins; apical field rather short, presenting 4 veins and a rather irregular, wide reticulation; lateral field black, with 5 close veins and 3 branches of the *Sc.* Wings as long as the elytra or caudate. *Genitalia* of the same type as *guttiventris*, with superior part short and wide, truncated at apex (fig. 37). ♀: *Elytra* a little shorter than the abdomen, blackish with a yellow humeral band which extends a little on the dorsal field at base; this field presents 7 rather regularly spaced veins, 4 of which are branches of the cubital; reticulation formed of rather regular, long, cells; lateral field as in the male; *Sc.* bearing two branches. Wings as in the male. *Ovipositor* rather long with feebly acute apical valves.

*Length* of body ♂ 12.6-14 mm., ♀ 14-16 mm.; post. fem. ♂ 8 mm., ♀ 9-9.5 mm.; elytra ♂ 10 mm., ♀ 9-9.5 mm.; ovipositor 8-10 mm.

*Range*.—INDIA: Bengal (type of *melanocephalus*, lost). Kashmir: Srinagar (P.M.). United Provinces (Uttar Pradesh): Dehra Dun (B.M.) (type of *concisus*, B.M.); Kumaon; Bhim Tal, 4,500 ft. (P.M.). Central Provinces (Madhya Pradesh) (type of *niger*, G.M.): Bacham Kalan (P.M.). NEPAL (type of *conscitus*, B.M.).

#### 40. *Gryllus angustulus* Walker

1871. *Gryllus angustulus* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 7.

♀: General shape rather narrow. *Colouration* of head blackish above with a small yellow band along the internal margin of the eye. Face brown with the sides rufous; clypeo-frontal suture rather strongly angulated, extending to the level of the inferior margin of antennal sockets. Palpi whitish. *Pronotum* rather strongly convex above, brown marbled with testaceous; lateral lobes brown with a broad yellowish band in its inferior part, the inferior margin narrowly brown. *Abdomen* dark brown, with two broad testaceous bands on the sides; on each tergite a small yellow spot in the middle of the brown part. *Legs* of the same colour as the body; posterior femora moderately swollen, striated on their external face; posterior tibiae armed with 7 spines on each margin. *Elytra* extending to the extremity of abdomen; dorsal field light brown, with a feeble yellowish lateral band;

veins of the dorsal field feebly oblique, regularly distant, 6 in number, of which 3 are branches of the cubital; reticulation formed of rather regular, strongly elongate cells; lateral field nearly transparent, presenting 4 close veins and 4 branches of the *Sc*. Wings feebly overreaching the elytra, whitish, darkened in the anterior field. *Ovipositor* rather long, with acute apical valves.

*Length* of body 15 mm.; length with wings 17 mm.; post. fem. 10.5 mm.; elytra 9.5 mm.; ovipositor 10.5 mm.

This species seems close to the preceding but it is difficult to ascertain this relationship, the male being unknown.

*Range*.—INDIA: Bombay (type, B.M.).

#### 41. *Gryllus blennus* (Saussure)

(Figs. 38, 39)

1877. *Grylloides blennus* Saussure, *Mém. Soc. Genève*, **25**, 215.  
 Bolivar, 1900, *Ann. Soc. ent. Fr.*, **68** (1899), 797.  
 1928. *Gryllus flavipes* Chopard, *Spol. Zeyl.*, **14**, 197, figs. 1, 2.  
 1931. *Gryllus blennus* Chopard, *Bull. Raffles Mus.*, No. 6, 130.  
 1936. *Gryllulus blennus* Chopard, *Ceyl. J. Sc.*, (B) **20**, 27. San-  
 drasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 545.

*Size* small. *Colouration* blackish with yellowish-rufous legs. *Head* dark brown, shining, without any marking; face brown, shining; mouth-parts rufous; ocelli yellow; clypeo-frontal suture feebly curved. *Pronotum* transverse with anterior and posterior margins straight, parallel sides; disk blackish, pubescent; lateral lobes blackish with inferior margin very slightly ascending backwards. *Abdomen* blackish. *Legs* light rufous, the posterior femora strongly darkened at apex; anterior tibiae short, with a large, oval external tympanum and a very small, round internal one; posterior tibiae blackish-brown, armed with 4 internal, 5 external rufous spines; apical spurs rather long, rufous; posterior metatarsi blackish with rufous apical spurs. ♂: *Elytra* a little shorter than the abdomen, blackish with nearly transparent, smoky parts; mirror pentagonal, as long as broad; 2 oblique veins; apical field very short, with few and very irregular veins; lateral field blackish, presenting 4 widely separated veins and the *Sc*. bearing one branch. Wings of variable length. Subgenital plate long, navicular. *Genitalia* short, deeply notched at apex with a small median process (figs. 38–39). ♀: *Elytra* rounded at apex; dorsal field with 4 nearly longitudinal, rather irregular veins; *Cu*. furcate towards the middle; lateral field as in the male, but with veins a little less distant; *Sc*. plain or bearing one branch. *Ovipositor* rather short, with apical valves small, acute.

*Length* of body 10–12 mm.; length with wings (macrop-  
terous form) 15–16 mm.; post. fem. 5·5–6·5 mm.; elytra 5·5  
mm.; ovipositor 6 mm.

*Range*.—INDIA: United Provinces (Uttar Pradesh); Dehra  
Dun (B.M.). W Bengal: Calcutta (P.M.). Assam: Ledo (Phil.  
M.). Madras: Madura (M.M.). BURMA: Mulmein (P.M.);  
Rangoon (V.M.); Toungoo; Shingbuiyang (Phil. M.). CEYLON:  
Colombo (type of *flavipes*, B.M.); Battaramulla; Marai Villu;  
Madola; Bandarawela (Col. M.); Peradeniya (V.M.). MALAYA:  
Kuala Lumpur (Sel. M., B.M.); Carey Island (Sel. M.).  
JAVA (type, L.M.).

## 42. *Gryllus pallipes* Chopard

1925. *Gryllus pallipes* Chopard, *Ann. Mag. nat. Hist.*, (9) 15,  
510, figs. 3, 4.

1936. *Gryllulus pallipes* Chopard, *Ceyl. J. Sc.*, (B) 20, 27. San-  
drasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 545.

♀: Rather small. *Colouration* almost black with legs tes-  
taceous. *Head*: Occiput and vertex rounded, wholly black;  
face a little flattened, brown. *Pronotum* slightly enlarged  
anteriorly, with both anterior and posterior margins straight.  
*Legs*: anterior tibiae presenting a large oval external tym-  
panum and a very small round internal one; posterior tibiae  
armed with 5 spines on each margin. *Elytra* extending  
to the apex of abdomen, presenting 6 rather irregular and  
distant veins, the 4th being a branch of the 3rd, 5th and 6th  
emerging from the cubital very near the apex; lateral field  
presenting 3 separate veins and 3 branches of the Sc., all of  
them parallel and regularly distant. Wings very long.  
*Ovipositor* rather long, slender, with apical valves very narrow  
and acute.

*Length* of body 11 mm.; length with wings 19 mm.; post.  
fem. 7·5 mm.; elytra 6 mm.; ovipositor 8 mm.

Close to the preceding but with regularly distant veins of  
the lateral field of elytra.

*Range*.—CEYLON: Peradeniya (type, B.M.); Colombo; Bat-  
taramulla; Rakwana (Sandrasagara).

## 43. *Gryllus castaneus* Chopard

1928. *Gryllus castaneus* Chopard, *Rec. Ind. Mus.*, 30, 11, figs. 20,  
21.

Rather small. *Colouration* uniformly chestnut-brown. *Head*  
concolorous, without any markings; vertex somewhat flat-  
tened; frontal rostrum wide; face short, the facial shield very

convex, somewhat swollen. Palpi rufous; antennae brown. *Pronotum* transverse, with anterior margin, concave posterior one straight; disk slightly convex, chestnut-brown, with the usual impressed areas a little lighter, covered with a rather abundant silky pubescence; lateral lobes of the same colour as the disk, with inferior margin slightly ascending backwards. *Abdomen* brown. Cerci rufous. *Legs* rather short, light rufous. Anterior tibiae perforated on either side; posterior femora rather thick, uniformly rufous on their external face; posterior tibiae short, presenting 5 internal, 6 external spines; metatarsi strongly denticulated. *Elytra* extending to the apex of abdomen. Wings caudate. ♂: Dorsal field of elytra translucent, smoky, darkened at apex; mirror markedly transverse, divided much behind the middle; 2 oblique veins; apical field short, presenting 4 veins and a regular reticulation; *Sc.* bearing one branch. ♀: Dorsal field of elytra presenting 4 rather irregular, parallel veins; *Sc.* plain. *Ovipositor* short, somewhat flattened and not very acute at apex.

*Length* of body 12 mm.; length with wings 19 mm.; post. fem. 7 mm.; elytra 7.5 mm.; ovipositor 4.5 mm.

This small species is distinguishable by its uniform colouration, by the shape of the head and the elytral venation.

*Range*.—INDIA: Bombay (type, B.M.).

#### 44. *Gryllus signifrons* Walker

(Fig. 40)

1869. *Gryllus signifrons* Walker, *Cat. Derm. Salt. Br. M.*, 1, 38.

*Colouration*: *Head* presenting a brown band behind each eye and three broad bands of the same colour, uniting in front on the rostrum; the median band is divided by a very fine light line which is furcate, each branch joining one of the lateral ocelli. Face yellow; antennal sockets circled with brown; clypeo frontal suture straight. Palpi yellowish; 5th joint of the maxillary ones brown at apex. *Pronotum* transverse, with parallel margins, straight anterior and posterior margins; disk almost flat, presenting in the middle a brown band widening backwards and two lateral large spots widening in front; the yellowish background is spotted with small brown points; lateral lobes yellowish with a brown band in the superior part; inferior margin straight, narrowly brown. *Abdomen* dark brown above, yellowish beneath. *Legs* pale testaceous, spotted with brown, pubescent; anterior tibiae with external tympanum large, oval, internal one very small or obliterated; posterior femora short and thick, unicolorous

or feebly striated with brown on the external face; tibiae armed with 5 spines on each superior margin. ♂: *Elytra* extending almost to the apex of abdomen, very light brown, translucent; mirror nearly as long as wide, in the shape of an oblique parallelogram, non-divided or divided much behind the middle by a small, strongly curved vein; diagonal vein long, strongly oblique; chords strongly convex, parallel, the first one united to the mirror by a veinlet; 2 oblique veins; apical field short, with 3 or 4 veins and a rather regular wide reticulation; lateral field almost transparent, a little darkened in its superior part, presenting 4 rather distant, but regularly spaced veins; *Sc.* bearing one branch. Wings long. *Genitalia* with very wide median part (fig. 40).

♀: Veins of the dorsal field of *elytra* rather regularly spaced, oblique; cubital vein bearing two branches; reticulation formed of rather regular, long areolae; lateral field with regularly and feebly spaced veins; *Sc.* with one branch. Wings very long. *Ovipositor* long and slender, with narrow, acute apical valves.

*Length* of body 11–13 mm.; length with wings 19–20 mm.; pronot. 2.5–2.6 mm.; post. fem. 8–8.2 mm.; *elytra* 7–7.5 mm.; *ovipositor* 9 mm.

This species is distinct by the peculiar pattern of the head and the shape of the genitalia of the male.

*Range.*—W PAKISTAN: Lyallpur (B.M.). INDIA: North India (type, B.M.); United Provinces (Uttar Pradesh): Fyzabad (P.M.). Bihar: Purnea Dist. (P.M.). UPPER BURMA: Shingbuiyang (Phil. M.).

#### 45. *Gryllus confirmatus* (Walker)

(Figs. 41, 42, 43 and 50)

- 1859. *Acheta confirmata* Walker, *Ann. Nat. Hist.*, (3) 4, 221.
- 1869. *Gryllus confirmatus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 371. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285.
- 1877. *Gryllus consobrinus* Saussure, *Mém. Soc. Genève*, 25, 188, pl. 12 (XI), fig. 4. Brunner, 1893, *Ann. Mus. Genova*, 33, 198. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 796. Chopard, 1924, *Rec. Ind. Mus.*, 26, 183.
- 1931. *Gryllulus confirmatus* Chopard, *Bull. Raffles Mus.*, No. 6, 130. Chopard, 1933, *Rev. Suisse Zool.*, 40, 163. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 25. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 545.
- 1936. *Gryllulus bucharicus* Chopard, *Ceyl. J. Sc.*, (B) 20, 25 (non Bei Bienko).

Rather small. *General colouration* pale testaceous but rather variable. *Head* brown with a narrow yellow band connecting

the lateral ocelli; occiput presenting 6 short yellowish lines; face yellowish; its superior part brown with a small yellow vertical line beneath the anterior ocellus; clypeo-frontal suture feebly curved. *Pronotum* transverse, with anterior margin feebly concave, posterior one straight, both provided with a row of strong rufous bristles; disk very feebly convex, finely pubescent, varied with brown and testaceous; lateral lobes brown with a yellowish band along the inferior margin which is narrowly darkened. *Abdomen* dark brown above, yellowish beneath. *Legs* yellowish, feebly mottled with

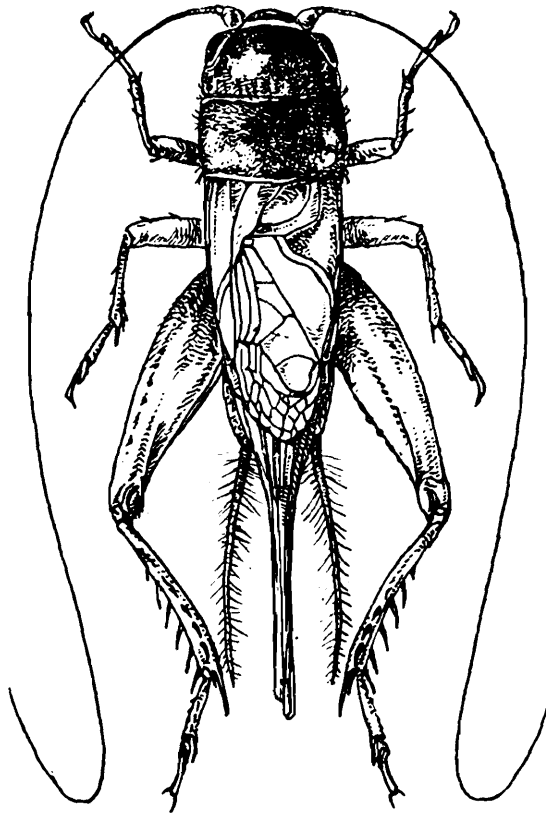


FIG. 41. *Gryllus confirmatus* Walk., ♂ ( $\times 1.6$ ).

brown, pubescent; posterior femora rather short and thick, feebly striated with brown on the external face; posterior tibiae armed with 5 yellowish spines on each margin.

♂: *Elytra* extending almost to the apex of abdomen, pale testaceous, translucent; mirror longer than wide, with the anterior angle a right angle, narrowing and rounded posteriorly divided or not by a curved vein; 2 oblique veins; apical field rather long, presenting 5 veins and a regular, rather wide reticulation; lateral field nearly transparent, presenting

4 veins, the two anterior ones being strongly curved and separated (fig. 50); *Sc.* bearing two branches. Wings usually caudate but micropterous individuals are also found. *Genitalia* with superior bridge deeply and rather widely notched, forming two rather acute, erect lateral lobes; inferior pieces presenting a more or less developed erect tooth (figs. 42, 43).

♀: *Elytra* presenting in the dorsal field 3 free veins and 4 branches of the cubital, all of them oblique and rather regularly distant; reticulation rather regular, formed of long cells; lateral field with veins curved and distant but less so than in the male. *Ovipositor* long, with lanceolate, rather acute apical valves.

*Length* of body 10.5–15.5 mm.; length with wings 16.5–21 mm.; post. fem. 7–8 mm.; elytra 6–8 mm.; ovipositor 5.5–6.5 mm.

This widespread species is highly variable, in size as well as in the colouration, some individuals being very pale testaceous, whereas others are dark brown. A good character to differentiate it from the neighbouring forms lies in the disposition of the veins of the lateral field of the elytra.

*Range*.—NEPAL: Chinchal (P.M.). EAST PAKISTAN: Malda (B.M.). INDIA: United Provinces (Uttar Pradesh): Boghpur. Bombay (type of *consobrinus*, G.M.); Malia (B.M.); Salsette Island; Andheri (B.M.). Bihar: Pusa (B.M.). West Bengal: Calcutta (B.M.); Diamond Harbour (B.M.). Assam: Brahmaputra River (B.M.); Ledo (Phil. M.). Orissa: Barkuda Island (I.M.). Mysore: Masnigudi (G.M.); Nedungadu; Shimoga (P.M.). Madras: Madura (P.M.). CEYLON: (type, B.M.); numerous localities (Col. M.). BURMA: Pijinmana (B.M.); Toungoo (Phil. M.). MALAYA: Kuala; Kedah (B.M.). SIAM. INDO-CHINA.

#### 46. *Gryllus flavus* (Chopard)

1936. *Gryllulus flavus* Chopard, *Ceyl. J. Sc.*, (B) 20, 24. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 545.

♀: Medium size; general shape feebly depressed. *Colouration* very uniform, light fulvous-brown. *Head* with a feebly marked pattern, formed of a narrow yellow band between the eyes and a wide, feebly visible, light band on the occiput. Face yellow; clypeo-frontal suture very low, nearly straight. *Pronotum* and *legs* uniformly yellowish-brown, with an abundant, dark pubescence. Posterior femora rather short and thick; tibiae armed with 5 or 6 external, 5 internal, slender yellow spines with brown tips; supero-internal apical spur

almost equal to the median one. *Elytra* showing the same pale fulvous tint as the body, shining; dorsal field with somewhat oblique, almost regularly spaced veins; areolae of the reticulation lengthened at base and towards the internal margin, narrower on the disk and towards the apex; lateral field nearly transparent with spaced veins, 6 in number, of which 4 are free and 2 branches of the *Sc*. Wings caudate. *Ovipositor* rather long, slender, with apical valves narrow, acute.

*Length* of body 14 mm.; post. fem. 8 mm.; elytra 9 mm.; ovipositor 11 mm.

This species is perhaps a pale variety of the preceding although it presents certain differences in the stouter general shape, the broader head and the clypeo-frontal suture almost straight. The male must be considered as unknown, the male described being certainly a *confirmatus*.

*Range*.—INDIA: Mysore: Nedungadu (Phil. M.). CEYLON: Rakwana (type, Col. M.). Sandrasagara records this species from a number of localities but it seems probable that most of them should be referred to *confirmatus*.

#### 47. *Gryllus lineiceps* Walker

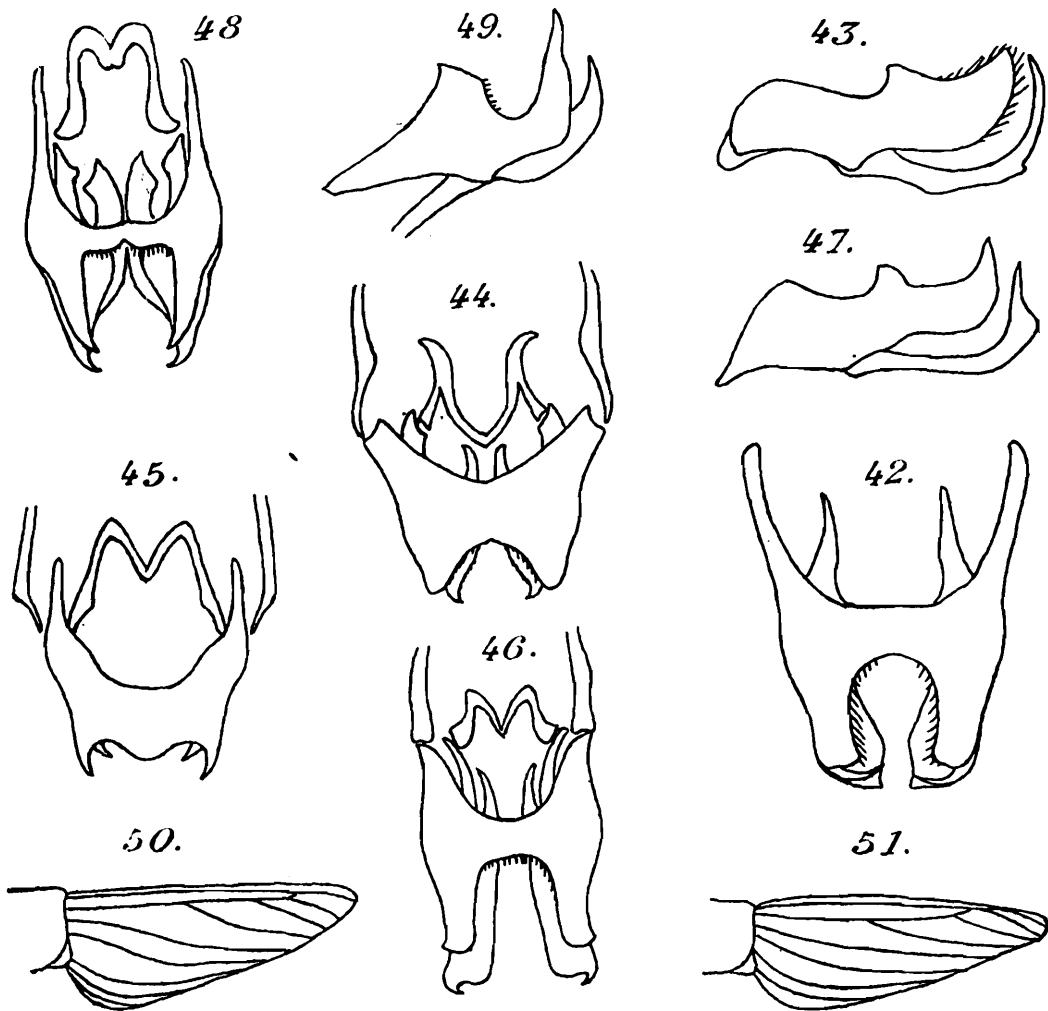
(Fig. 44)

1871. *Gryllus lineiceps* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl. 7.

Small, rather slender. *Colouration* testaceous. *Head* blackish-brown above, shining, presenting a feeble light band on the occiput and a second one, much more visible, rather narrow, between the lateral ocelli. *Face* brown with a yellow line beneath the anterior ocellus; clypeo-frontal suture rather strongly angulate. *Antennae* and *palpi* yellowish; 5th joint of maxillary palpi in the shape of a long triangle, very obliquely truncated at apex, which is darkened. *Pronotum* one and a half times as wide as long, with anterior margin feebly concave, posterior one straight, sides parallel; disk almost flat, strongly pubescent, dark brown with a few irregular yellow spots; lateral lobes brown with a narrow yellow band along the inferior margin; posterior angle strongly rounded. *Abdomen* brown above, yellowish beneath. *Legs* yellowish spotted with brown; posterior femora broad, striated with brown on the external face; tibiae armed with 6 external, 5 internal spines. ♂: *Elytra* extending to the apex of abdomen, light brown with a darker humeral band; mirror longer than wide, lozenge-shaped, with posterior angle rounded, undivided or divided in the middle by an angulate vein; diagonal



vein long and straight; chords feebly curved, parallel, the first one united to the mirror by a veinlet; 2 oblique veins; apical field rather short presenting 4 veins and a reticulation of rather regular, large cells; lateral field presenting 4 nearly straight, parallel, feebly distant veins; *Sc.* widely separated from the second vein, bearing two branches. Wings long. *Genitalia* short, rather feebly notched at apex, the inferior parts finely denticulated on the internal margin (fig. 44).



FIGS. 42 to 51. Genitalia of *Gryllus*: 42. *G. confirmatus*. 43. *id.*, side view. 44. *G. lineiceps*. 45. *G. minimus*. 46. *G. ehsani*. 47. *id.*, side view. 48. *G. semiobscurus*. 49. *id.*, side view. 50. lateral field of elytron of *G. confirmatus*. 51. *id.*, *G. ehsani*.

♀: *Elytra* as long as in the male; dorsal field light brown, translucent, with rather regular, oblique veins; *Cu.* bearing 3 branches, the other three veins rather close, parallel; transverse veinlets forming long, narrow, rather regular cells; lateral field almost transparent with a brown band in its superior part, presenting 3 rather strongly separated veins and 2 branches

of the *Sc.* *Ovipositor* with apical valves rather wide, and acute at apex.

*Length* of body 10–10.5 mm.; length with wings 14.5–15 mm.; pronot. 2 mm.; post. fem. 6–6.5 mm.; elytra 6–6.3 mm.; ovipositor 5 mm.

*Range*.—INDIA: Bombay (type, B.M.). Madhya Pradesh: Rewa State; Koibari (P.M.). W. PAKISTAN: Lyallpur (B.M.).

#### 48. *Gryllus minimus* Chopard

(Fig. 45)

1928. *Gryllus minimus* Chopard, *Rec. Ind. Mus.*, 30, 12.

A very small species. *Colouration* brown, mottled with fawn. *Head* brown, shining; occiput adorned with 5 yellow lines; vertex without yellow line between the ocelli; cheeks and inferior part of the face yellow; clypeo-frontal suture low, very feebly convex. Palpi brownish; 4th joint of maxillary ones much shorter than 5th. *Pronotum* mottled with yellowish above; lateral lobes brown. *Abdomen* brown above, yellowish beneath. *Legs* yellowish, marbled with brown bands and spots; anterior tibiae perforated on both sides; posterior femora rather thick; posterior tibiae armed with 5 spines on each margin. ♂: *Elytra* extending to the apex of abdomen; mirror large, nearly as long as wide, anterior and external angles of 90°, posterior and internal angles rounded; no dividing vein; diagonal vein rather long, straight; 4 oblique veins, slightly sinuated, parallel; apical field short; lateral field whitish with a blackish band in its superior part, presenting 4 veins feebly curved at base and converging towards the apex; *Sc.* plain. ♀: *Elytra* covering half the abdomen, rounded at apex; dorsal field with 6 veins rather close together, nearly longitudinal, lightly irregular and anastomosing; lateral field coloured as in male, presenting 4 plain, equidistant veins. *Ovipositor* rather short, a little curved, with apical valves small, lanceolate, acute. Wings short or caudate.

*Length* of body 8.5 mm.; pronot. 2 mm.; post. fem. 6.5 mm.; elytra ♂ 5.5 mm., ♀ 3 mm.; ovipositor 5 mm.

This species is distinguished by its very small size; it looks very much like the preceding, but differs in the shape of the head which is not so wide, with nearly straight clypeo-frontal suture; the genitalia of the male are also quite different (fig. 45).

*Range*.—INDIA: W Bengal: Darjeeling Dist.; Sureil, 5,000 ft. (type, I.M.). Bihar: Chapra (P.M.). Assam: Ledo (Phil. M.).

UPPER BURMA: Nam Tamai Valley, 4,000 ft. (B.M.); Toun-goo (Phil. M.).

#### 49. *Gryllus ehsani* n. sp.

(Figs. 46, 47 and 51)

*Holotype*: West Pakistan: Malir (Ehsan, 16.IV.1957), ♂ (British Museum).

A small species of the *confirmatus* group. *Head* big, brown above but widely tinged with yellowish on the occiput; there is also a narrow yellow band between the lateral ocelli; face yellow; clypeo-frontal suture feebly curved. *Antennae* and *palpi* yellow; 5th joint of maxillary palpi long, rather strongly widening at top, with apical margin rounded and darkened. *Pronotum* almost twice as broad as long, feebly widening in front; disk nearly flat, with anterior part brown, posterior part yellowish with two round, brown spots; lateral lobes yellow with a wide brown band in the superior part. *Abdomen* brown above, yellow beneath. *Cerci* yellow. *Legs* yellowish, almost without brown spots. *Anterior tibiae* with a large, oval, external tympanum, internal one very small. *Posterior femora* rather strongly swollen at base, feebly darkened at apex; *tibiae* armed with 5-6 spines on each margin.

♂: *Elytra* extending nearly to the apex of abdomen, rounded at top; dorsal field dark greyish with a yellow humeral band; mirror lozenge-shaped, rounded backwards, non-divided; 2 oblique veins; apical field short, with 3 rows of large cells; lateral field almost transparent, presenting 4 straight, rather close veins (fig. 51); *Sc.* with one branch. *Wings* very short. *Genitalia* of the *confirmatus* type, with inferior parts denticulated outwards (figs. 46, 47). ♀: *Head*, *pronotum* and *legs* as in male but somewhat darker. *Elytra* extending to the apex of 4th abdominal tergite; dorsal field very light brown, with 3 straight veins and two branches of the cubital; transverse veinlets very feebly marked, forming rather regular, long areolae; lateral field transparent, with 3 regularly spaced veins; *Sc.* bearing two branches. *No wings*. *Ovipositor* rather long, straight, with apical valves narrow, lanceolate, acute.

The male of this species is distinguished by the relatively dark colour of the elytra, the female by its short elytra.

*Length* of body ♂ 9.5 mm., ♀ 10 mm.; pronot. 2.2 mm.; post. fem. 6.5 mm.; elytra ♂ 4 mm., ♀ 3.2 mm.; ovipositor 5 mm.

*Range*.—INDIA: Madras: Coimbatore (Phil. M.). Mysore: Nedungadu; Tudiwanam (Phil. M.). Assam: Ledo (Phil. M.).

### 50. *Gryllus brevecaudatus* nom. nov.

1936. *Gryllulus brevecauda* Chopard, *Ceyl. J. Sc.*, (B) 20, 26, fig. 3  
(*non Acheta brevecauda* Karny, 1907). Sandrasagara,  
1954, *J. Bombay, nat. Hist. Soc.*, 52, 545.

♀: Small; general habitus as of *confirmatus* but with bigger and more rounded head. This one is globular, shining brown; occiput with six short, yellowish lines; vertex without any marking; face brown; clypeo-frontal suture low but convex. Palpi yellowish, the three last joints of the maxillary ones nearly equal in length. Antennae brown. Pronotum transverse, very slightly enlarged in front; anterior margin very weakly concave, posterior margin straight; disk regularly convex, dark brown, mottled with yellowish, somewhat pubescent; lateral lobes with yellow inferior part. Abdomen brown above, yellowish beneath. Legs lighter than the body, yellowish. Anterior tibiae perforated on the external face only, with a large, oval tympanum. Posterior femora thick and rather short; tibiae armed with 5 external, 4 internal spines; supero- and medio-internal apical spurs subequal in length. Elytra short, extending no farther than the third abdominal tergite, rounded at apex; dorsal field dark brown, shining, with 4 slightly oblique veins, the 4th furcate near the base; transverse veinlets scarce, rather irregular; lateral field brown, presenting 4 rather close veins. Wings abortive. Ovipositor extremely short but not rudimentary; its shape being as usual in most *Gryllus*, with lanceolate apical valves.

♂: Similar to the female, but a little lighter, with a feebly visible, incomplete brown band between the ocelli; head somewhat larger. Posterior tibiae bearing 5 spines on each margin. Elytra extending nearly to the apex of abdomen, rounded at apex; mirror as long as wide, with much rounded angles, undivided; diagonal vein long, nearly straight; chords regularly curved; 3 oblique veins, almost straight and parallel; lateral field with 4 regularly spaced veins and two branches of the Sc. Wings abortive (a macropterous condition exists).

Length of body 12 mm.; post. fem. 8 mm.; elytra ♂ 6 mm., ♀ 4 mm.; ovipositor 1.6 mm.

Range.—CEYLON: Bintenne (type, Col. M.); Kandy; Wellawaya; Battaramulla; Balangoda; Colombo (Col. M.).

### 51. *Gryllus signipes* Walker

1871. *Gryllus signipes* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl., 8.

♀: Colouration black. Head shining, with a narrow orange yellow band on the fore part of the vertex and with a luteous

dot between the sockets of the antennae. Face and clypeus bordered with luteous. *Pronotum* dull with a short pale testaceous streak along the fore end of each side. *Legs* testaceous; hind femora on the outer side with many oblique blackish streaks, which are interrupted by two testaceous longitudinal lines; the four anterior femora with blackish marks above. *Elytra* brown, extending nearly to the tip of abdomen. Hind wings caudate (after Walker).

*Length* of body 12.5 mm. Ovipositor a little shorter than the body.

*Range*.—INDIA: Bombay (type, B.M.).

## 52. *Gryllus rehni* n. sp.

*Holotype*: Upper Burma: 40 m. mark over Pangsang Pass, 3,500–3,700 ft. (J. W. H. Rehn, 31.X.1944), ♂; *allotype*: same locality, ♀ (Academy of Natural Sciences, Philadelphia).

A rather small species. *Head* small, blackish above with two transverse yellowish bands, one on the occiput, the other narrower between the ocelli; frontal rostrum relatively narrow. Face as long as broad, brown in the superior part to the clypeus, yellowish beneath; clypeo-frontal suture almost straight, only very feebly undulated in the middle. Antennae yellow. Palpi light brown; 4th joint of the maxillary ones shorter than 3rd, 5th rather broad. *Pronotum* a little wider than long, with anterior margin feebly concave, posterior margin straight, lateral margins parallel; disk nearly flat, yellowish spotted with brown; lateral lobes blackish. *Abdomen* brown spotted with yellowish. *Legs* rather short, yellowish spotted with brown; anterior tibiae perforated on the external face only with a rather large oval tympanum. Posterior femora rather stout, striated with brown on the external face; posterior tibiae armed with 4 spines on each margin; posterior metatarsi long and slender.

♂: *Elytra* extending almost to the apex of abdomen; mirror almost apical, as long as broad, with right anterior angle, rounded posterior margin; 3 oblique veins; apical field reduced to one row of large cells; lateral field blackish, presenting 4 regularly spaced veins; *Sc.* plain. Wings very short. *Genitalia* with superior bridge trilobate, the median lobe short, angulated, lateral lobes a little longer, horn-shaped.

♀: *Elytra* extending to the apex of the second abdominal tergite, contiguous on the median line, with oblique internal margin; dorsal field brown with a yellow humeral band; dorsal field presenting 3 somewhat irregular veins; lateral field blackish with 4 regularly distant veins and the *Sc.* plain.

*Ovipositor* rather short and thick, with apical valves a little flattened, acute.

*Length* of body, ♂ 10 mm., ♀ 11 mm.; pronot. ♂ 2.2 mm., ♀ 2.5 mm.; post. fem. ♂ 7.5 mm., ♀ 8 mm.; elytra ♂ 5 mm., ♀ 2.5 mm.; ovipositor 5.5 mm.

This small species looks rather like a *Nemobiodes* with the apical field of the elytra almost null, but the mirror is much more developed; the genitalia are close to those of *minus* with lateral lobes a little more curved; in the female the elytra are particularly short.

### 53. *Gryllus semiobscurus* n. sp.

(Figs. 48, 49)

*Holotype*: Assam: Vicinity of Ledo (J. W. H. Rehn, 14.X. 1944), ♂ (Academy of Natural Sciences, Philadelphia).

Rather close to *confirmatus*, a little stouter; general colour rather dark brown, with marbled yellowish spots. *Head* round; blackish above with light occiput and a rather narrow yellow band between the ocelli. Face as long as broad, brown in its superior part, yellowish on the clypeus and the mouth-parts; clypeo-frontal suture feebly convex. Antennae brown. Palpi yellowish; 5th joint of the maxillary ones darkened and obliquely truncated at apex. *Pronotum* one and a half times as broad as long, slightly enlarged in front, with anterior margin very feebly concave, posterior margin straight; disk nearly flat, varied with dark brown and yellowish; lateral lobes blackish-brown with a broad yellow band in the inferior half, the extreme inferior margin black. *Abdomen* very dark brown above, yellowish beneath. *Legs* yellowish, strongly mottled with brown, pubescent. Posterior femora rather short and thick, striated with brown; posterior tibiae armed with 5 internal, 6 external spines. *Elytra* a little shorter than the abdomen; mirror almost as wide as long, with right anterior angle, rounded posteriorly, divided in the middle; 2 oblique veins; apical field short, presenting 3 veins and a few large cells; lateral field almost transparent with a brown band along the superior edge; 4 veins rather regularly and moderately spaced. *Sc.* bearing two branches. Wings short; *Genitalia* (figs. 48, 49) with very narrow superior bridge, feebly notched in the middle, inferior pieces very broad, ending as well as the angles of the bridge, in a sharp point, curved upwards.

*Length* of body 11 mm.; pronot. 2.5 mm.; post. fem. 7 mm.; elytra 7 mm.

Differing from *confirmatus* in the rather dark colouration and the shape of the genitalia.

*Range*.—At present known only from Assam.

## Genus GRYLLOPSIS Chopard

1874. *Gryllodes* (part.) Saussure, *Miss. Mexique, Orth.*, 409.

Saussure, 1877, *Mém. Soc. Genève*, 25, 197.

1928. *Gryllopsis* Chopard, *Rec. Ind. Mus.*, 30, 13.

*Type*.—*Gryllodes hebraeus* Saussure.

*Range*.—Africa south of the Sahara, Egypt, Persia, tropical Asia, Australia.

The species of this genus present the general characters of *Gryllus*. Head usually big, globular; body nearly cylindrical in the females. The posterior metatarsus is usually stouter and shorter than in *Gryllus*. Elytra usually perfectly developed, very wide in the male, often very short sometimes reduced to lateral pads in the female. There is no internal tympanum on the anterior tibiae. It seems that a macrop-terous condition is non-existent or at least very scarce in the species of this genus.

The species of *Gryllopsis* are inhabitants of rather dry regions; they hide themselves under stones and do not burrow so willingly as the true *Gryllus* do.

## Key to the species of GRYLLOPSIS

### Females

- |   |  |                                  |
|---|--|----------------------------------|
| 1 | Apical valves of ovipositor, when at rest, separated (fig. 54).  | 2                                |
|   | Apical valves of ovipositor close together (fig. 53).  | 3                                |
| 2 | Larger species (19–22 mm.); head adorned with two transverse brown bands; wholly apterous.   | <i>furcata</i> (Sauss.), p. 79   |
|   | Smaller species (12–14 mm.); head brown above with short longitudinal yellow lines on the occiput; elytra very small, rudimentary. | <i>virgulata</i> (Bol.), p. 73   |
| 3 | Elytra and wings perfectly developed in both sexes.  | <i>sexlineata</i> n. sp.*, p. 78 |
|   | Elytra very short or absent; no wings  | 4                                |
| 4 | Elytra contiguous on the median line   | <i>femorata</i> Chop., p. 81     |
|   | Elytra lateral, more or less widely separated on the median line, or absent.   | 5                                |

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\* Macropterous specimens may occasionally be found in other species.

- 5 General colouration very pale; face wide; clypeo-frontal suture straight. *pallida* n. sp., p. 83  
*arenicola* (Annandale), p. 84
- General colouration more or less brownish; face not so wide; clypeo-frontal suture at least arcuated... 6
- 6 Wholly apterous. 7  
Elytra present. . . . . 8
- 7 Rather large species (20 mm.); uniformly rufous-brown. *robusta* Chop., p. 82  
Smaller (11.5 mm.); pronotum brown with rufous impressions and yellow lateral lobes.. *maculithorax* n. sp., p. 73
- 8 Thickly pubescent; body somewhat depressed.. *pubescens* Chop., p. 83  
Feebly pubescent; body almost cylindrical. . . . . 9
- 9 Head with a transverse yellow band between the ocelli. . . . . *fascifrons* n. sp., p. 77  
Head without transverse band. 10
- 10 Head with very conspicuous narrow longitudinal yellow bands; abdomen with a brown dorsal band.. 11  
Head with less marked longitudinal bands. . . . . 12
- 11 Elytra rather widely separated on the median line.. *falconneti* (Sauss.), p. 70  
Elytra feebly separated on the median line. . . . . *pakistana* n. sp., p. 75
- 12 Elytra longer than the metanotum, separated by a very narrow space.. *rufoniger* (Chop.), p. 71  
Elytra very short, widely separated. *histrion* (Sauss.), p. 70

## Males

- 1 Head adorned with two transverse brown bands. . . . . 2  
Head without transverse bands.. 3
- 2 Genitalia without lateral processes (fig. 61).. . . . *furcata* (Sauss.), p. 79  
Genitalia with lateral processes (fig. 62) *babaulti* n. sp., p. 80
- 3 Head black; three oblique veins. *nigrifrons* (Br.), p. 79  
Head brown above. . . . . 4
- 4 Genitalia without lateral processes. *flavifrons* n. sp., p. 76  
Genitalia with lateral processes. . . . . 5
- 5 Elytra and wings fully developed.. *serilineata* n. sp., p. 78  
Elytra somewhat reduced; wings abortive..... 6
- 6 Elytral mirror almost twice as broad as long. . . . . *histrion* (Sauss.), p. 70  
Elytral mirror once and a half as broad as long. . . . . 7
- 7 Two oblique veins; pronotum dark brown with light impresses. 8  
Three or four oblique veins; pronotum fulvous with a wide posterior brown band.. . . . 9



- 8 Apical field of elytra rather long; oblique veins feebly diverging; genitalia rather long (fig. 56). *virgulata* (Bol.), p. 73  
 Apical field of elytra reduced to two rows of cells; oblique veins strongly divergent; genitalia short. . . . *maculithorax* n. sp., p. 73  
 9 Apical field of elytra with a rather wide reticulation. *rufoniger* Chop., p. 71  
 Apical field of elytra with a very close reticulation. *pakistana* n. sp., p. 75

#### 54. *Gryllopsis falconneti* (Saussure)

(Fig. 53)

1877. *Grylloides falconneti* Saussure, *Mém. Soc. Genève*, **25**, 230.  
 1935. *Gryllopsis falconneti* Chopard, *Ann. Mag. nat. Hist.*, (10) **16**, 288. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 28.  
 Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 546.

♀: Body cylindrical. *Head* big, rounded, shining brown above with 4 narrow yellow longitudinal lines. Face yellow; the black colour of the skull forming between the antennae, above the anterior ocellus, a wide bilobate drawing. *Pronotum* yellowish with a few brown spots; lateral lobes yellow. *Abdomen* yellow with a median and two lateral brown bands. *Legs* yellowish; posterior femora short and stout, feebly striated with brown at their external face; posterior tibiae armed with 5 spines on each superior margin; posterior metatarsi long, compressed, armed above with 4 or 5 denticles on each margin. *Elytra* as long as the metanotum, separated by an interval equalling their length. *Ovipositor* long, straight, with apical valves small, lanceolate, the superior longer than the inferior ones (fig. 53). Male unknown.

*Length* of body 13–16 mm.; pronot. 3·8–4 mm.; post. fem. 10·5–12·5 mm.; elytra 2·5 mm.; ovipositor 14–15 mm.

*Range*.—W PAKISTAN: Rawalpindi (P.M.). INDIA: Central India (type in Saussure's collection, G.M.); Maharashtra: Igatpuri (B.M.). CEYLON (Kirby).

#### 55. *Gryllopsis histrio* (Saussure)

1877. *Grylloides histrio* Saussure, *Mém. Soc. Genève*, **25**, 229.  
 1933. *Gryllopsis histrio* Chopard, *Rev. Suisse Zool.*, **40**, 163.

♀: Body cylindrical, slender. *Colouration* testaceous-brown, pubescent. *Head* round, blackish-brown, shining, more or less adorned above with short yellowish lines. Face yellow up to the anterior ocellus. *Pronotum* testaceous, more or

less varied with brown; there is often a brown band along the lateral edges and two brown spots near the posterior margin; lateral lobes yellowish. *Abdomen* fulvous with longitudinal brown bands which are not so neat as in the preceding species. *Legs* fulvous, feebly spotted with brown; posterior tibiae armed with 5 internal, 6 external spines. *Elytra* as long as the metanotum, widely separated; dorsal field smaller than the lateral field, with very oblique internal margin; lateral field almost transparent with a narrow brown band in the superior part, presenting 5 regularly distant veins. Wings present but shorter than the elytra. *Ovipositor* long and slender, with apical valves lanceolate, narrow.

♂: *Elytra* a little shorter than the abdomen; mirror much wider than long, with acute internal angle, anterior and posterior angles almost rounded; 2 oblique veins; apical field short, with 3 veins and a reticulation formed of nearly square, regular areolae; lateral field whitish, with 5 rather close veins; *Sc.* bearing two branches, the first being strongly sinuated and distant from the second. Wings short. Epiproct triangular, long and narrow. Superior bridge of *genitalia* presenting on each angle a rather long, slender process.

*Length* of body 9–10 mm.; pronot. 2–2.5 mm.; post. fem. ♂ 6.5 mm., ♀ 7.5 mm.; elytra ♂ 4.2 mm., ♀ 1–1.5 mm.; ovipositor 7.5 mm.

*Range*.—INDIA (type in Saussure's collection, G.M.): Himachal Pradesh: Simla (B.M.). Madras: Nilgiris; Coonoor (G.M.). Bihar: Monghyr (P.M.). Assam: Mangaldai (P.M.).

## 56. *Gryllopsis rufoniger* (Chopard)

(Figs. 52, 55)

1925. *Grylloides rufoniger* Chopard, *Ann. Soc. ent. Fr.*, **94**, 292.

1935. *Gryllopsis rufoniger* Chopard, *Ann. Mag. nat. Hist.*, (10) **16**, 288.

♀: *Head* globular. *Colouration* occiput blackish, shining, with 7 short yellowish lines. Face yellow up to the anterior ocellus; clypeo-frontal suture arched, extending only to the inferior level of the antennal sockets. *Pronotum* strongly convex; disk rufous-brown with a dark, irregular band along the posterior margin; lateral lobes yellow. *Abdomen* blackish above, yellow beneath. *Legs* yellowish. Posterior femora stout, blackish at apex; posterior tibiae armed with 5 internal, 7 external spines. *Elytra* extending to the apex of 1st abdominal tergite, separated by a narrow space, their internal margin convex; dorsal field with 4 veins, the space between *Cu*.

and *Cup.* very wide; lateral field yellow, with strongly oblique inferior margin, presenting 5 regularly spaced veins; *Sc.* plain or bearing one branch. *Ovipositor* long, with apical valves small, lanceolate.

♂: *Elytra* extending to the apex of abdomen; mirror one and a half times as wide as long, divided in the middle by a curved vein; 3 oblique veins; apical field with 5 veins and a reticulation formed of long areolae; lateral field yellowish, bearing 7 veins; *Sc.* with two branches, the 1st very distant. Wings short.

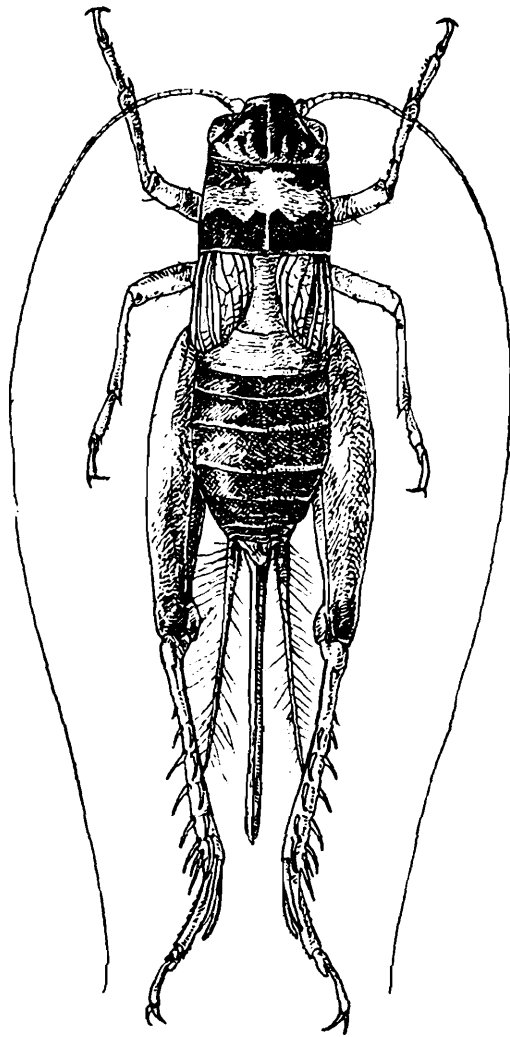


FIG. 52. *Gryllopsis rufoniger* (Chop.), ♀ ( $\times 3.5$ ).

*Length* of body ♂ 13.5 mm., ♀ 15–15.5 mm.; pronot. ♂ 3 mm., ♀ 3.5 mm.; post. fem. ♂ 10.5 mm., ♀ 10.5–11 mm.; elytra ♂ 8 mm., ♀ 3.2–3.5 mm.; ovipositor 13 mm.

*Range.*—INDIA: W Bengal: Darjeeling Dist. (P.M.). Assam: Shillong, 5,000 ft. (B.M.). UPPER BURMA: Myit-kyina; Shingbuiyang (Phil. M.). FRENCH INDO-CHINA: Laos (type in P.M.).

A female in the Philadelphia Museum is perfectly macrop-  
terous, this condition being certainly extremely rare in this  
species.

### 57. *Gryllopsis virgulata* (Bolivar)

(Figs. 54, 56)

1900. *Gryllodes virgulatus* Bolivar, *Ann. Soc. ent. Fr.*, **68** (1899),  
797.  
1928. *Gryllopsis fuscus* Chopard, *Rec. Ind. Mus.*, **30**, 14, fig. 18.  
Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 288.  
1935. *Gryllopsis virgulatus* Chopard, *Ann. Mag. nat. Hist.*, (10)  
**16**, 288.

Very close to the preceding from which it differs in the  
following features. *Size* somewhat smaller. General *coloura-  
tion* darker. *Head* dark brown above, shining, rarely with  
short, yellow lines on the occiput; clypeo-frontal suture  
strongly angular, extending to the middle of the antennal sock-  
ets. *Pronotum* dark brown with rufous impresses, anterior  
margin more or less yellowish; lateral lobes yellowish with  
brown superior part. *Legs*: Posterior femora darkened at  
apex. Male *elytral* mirror wider than in *rufoniger*, divided  
behind the middle by a curved vein; 2 oblique veins; apical  
field with 2 veins only and a wide, irregular reticulation.  
*Genitalia* quite different (*vide* figs. 55, 56).

In the female sex, the colour is very variable, some individ-  
uals being almost wholly dark brown with light legs, others  
lighter with feebly marked longitudinal light bands on the ab-  
domen. Elytra quite rudimentary. *Ovipositor* rather short,  
with widely separated apical valves (fig. 54).

*Length* of body ♂ 10–12.5 mm., ♀ 12–14 mm., pronot. ♂  
2.2–2.8 mm., ♀ 3–3.5 mm.; post. fem. ♂ 8.5–10 mm., ♀  
9.5–11 mm.; elytra ♂ 6.5–7.5 mm., ♀ 0.3–0.6 mm.; ovipositor  
8.5–9 mm.

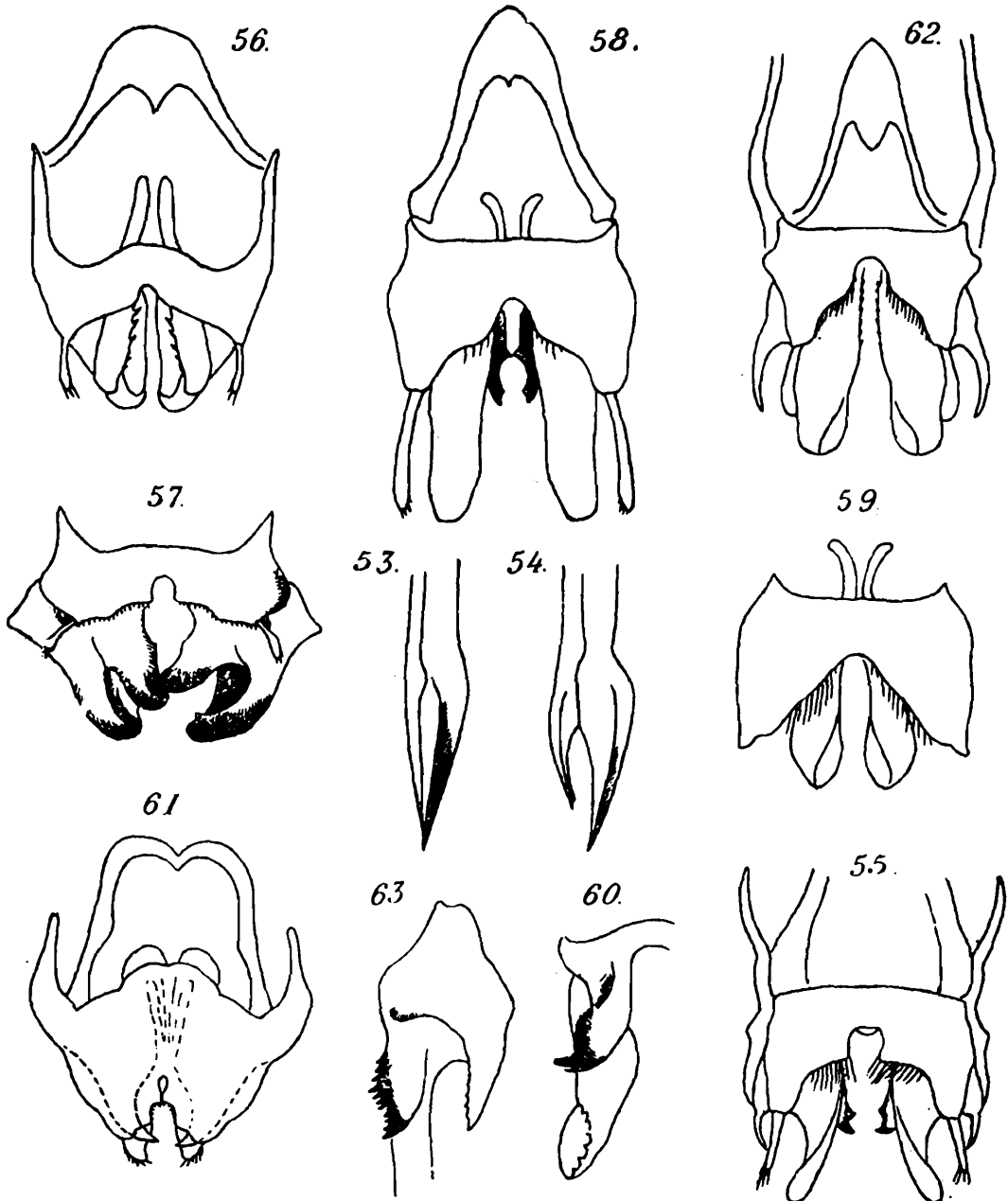
*Range*.—INDIA: Madras: Kodaikanal (type in Pantel's  
collection, P.M.); Nilgiris; Coonoor; Kotagiri; Soperdale;  
Ootacamund; Madura (P.M.); Shambaganur (B.M.); Palni  
Hills; Pumbarai (G.M.); Notterikal Region; Kalakkad forest,  
3,000 ft. (P.M.).

### 58. *Gryllopsis maculithorax* n. sp.

(Fig. 57)

*Holotype*: Mysore: Shimoga (P. S. Nathan, 8.VII.1930)  
♂ (Philadelphia Museum); *allotype*: Kodikam mounts, ♀  
(Paris Museum).

Very close to *virgulata*. *Head* dark brown above; face rather long, yellowish; clypeo-frontal suture strongly angulate. Antennae brown, with first joint yellow; palpi yellow.



FIGS. 53 TO 63. 53. Apical valves of ovipositor of *Gryllopsis falconneti*. 54. *id.*, of *G. virgulata*. FIGS. 55 TO 63: Genitalia: 55. *G. rufoniger*. 56. *G. virgulata*. 57. *G. maculithorax*. 58. *G. pakistana*. 59. *G. flavifrons*. 60. *id.*, base of right side of inferior part. 61. *G. furcata*. 62. *G. babaulti*. 63. *id.*, base of right side of inferior part.

*Pronotum* with anterior margin very feebly concave, posterior margin straight, sides parallel; disk convex, finely pubescent, dark brown with the piriform impresses rufous; lateral lobes yellow. *Abdomen* brown above, yellow beneath. *Legs* yellowish, finely pubescent. Posterior femora thick, slightly

darkened at apex; posterior tibiae armed with 5 spines on each margin.

♂: *Elytra* extending to the apex of abdomen, blackish-brown; mirror wider than long, divided by a curved vein; 2 oblique veins, united at base and strongly diverging; apical field very short, presenting two rows only of large cells; lateral field translucent, presenting 4 regularly spaced veins and *Sc.* bearing 2 branches. Wings very short. Epiproct triangular, acute at apex; subgenital plate large, deeply notched at apex, forming two large lobes with straight margins. *Genitalia* very short and strongly sclerified; superior bridge presenting two short movable processes; inferior parts in the shape of short, curved teeth (fig. 57).

♀: Dark brown with fulvous legs; *pronotum* as in male. *Elytra* not visible. *Ovipositor* straight with apical valves beak-like, the superior much longer than the inferior ones, acute.

*Length* of body 11.5 mm.; pronot. 2.6 mm.; post. fem. 9–9.5 mm.; elytra ♂ 6.5 mm.; ovipositor 8.5 mm.

Although close to the preceding this species can be distinguished in the male by the strongly diverging oblique veins, the apical field of elytra shorter and the much shorter genitalia; in the female the elytra are completely hidden by the pronotum.

### 59. *Gryllopsis pakistana* n. sp.

(Fig. 58)

*Holotype*: West Pakistan: Malir (Ehsan, 16.VII.1957), ♀ (British Museum).

♀: *Size* and general aspect as in *rufoniger*. *Head* brown above with six very neat longitudinal, yellow lines. Face and cheeks yellow; the yellow colour of the face extends round the anterior ocellus. Palpi yellow. *Pronotum* a little wider than long, with anterior margin very feebly concave, posterior margin straight; disk feebly convex, rufo-testaceous with a few small brown spots and a large marking on each side of the median line, near the posterior margin; lateral lobes yellow, with straight inferior margin. *Abdomen* nearly cylindrical, rufous with three longitudinal blackish bands, one in the middle, the other two on the sides; inferior face yellow; subgenital plate small, brown, with apical margin feebly notched. *Legs* yellowish, pubescent. Anterior tibiae with a rather large oval tympanum, the internal face presenting a depression or a very small tympanum. Posterior femora strongly swollen at base; tibiae armed with 6 internal,

7 external rather strong spines; posterior metatarsi long, compressed, armed above with 6–8 denticles. *Elytra* extending to the middle of the second abdominal tergite, separated by a very narrow space on the median line; internal margin convex; dorsal field rather large, dark brown with 5 plain veins and the cubital divided; transverse veinlets rather numerous, chiefly between *R* and its sector; lateral field high, pale yellowish, almost transparent; *Sc.* bearing one branch. *Ovipositor* rather long and slender, straight; apical valves lanceolate, acute.

♂: *Allotype*: same locality. *Head*, *pronotum* and *legs* as in the female; *abdomen* light testaceous with the median dark band formed of two longitudinal lines; epiproct strongly narrowing posteriorly, ending in two small points. *Elytra* very light brown, almost transparent, somewhat darkened along the internal margin and in the apical field; mirror once and a half as broad as long, oval, divided behind the middle by an undulated vein; 3 oblique veins; apical field rather long, rounded at apex presenting 5 regularly distant veins and a very close reticulation; lateral field large, almost transparent, with 6 veins and 2 branches of the *Sc.* Wings very short. *Genitalia* of the same type as *rufoniger*, the lateral processes very long, feebly widening at apex (fig. 58).

*Length* of body ♂ 13 mm., ♀ 14.5 mm.; pronot. ♂ 2.5 mm., ♀ 3.2 mm.; post. fem. ♂ 8.5 mm., ♀ 10.5 mm.; elytra ♂ 7 mm., ♀ 4.5 mm.; ovipositor 12.5 mm.

Close to *rufoniger*; general colouration not so vivid but the yellow lines of the head much more marked; in the male the mirror is wider and the apical field of elytra more rounded, with closer reticulation; in the female the elytra are a little longer with more convex internal margin.

*Range*.—INDIA: Madras: Salem Dist., Shevaroy Hills (Phil. M.).

## 60. *Gryllopsis flavifrons* n. sp.

(Figs. 59, 60)

*Holotype*: Coorg, Mercara (N. B. Kinnear, 26.X.1918), 1 ♂ (British Museum).

*Size* and general appearance as in *virgulata*. *Head* brown above with 6 yellow lines on the occiput. Face and cheeks yellow; clypeo-frontal suture low, very feebly undulated in the middle. Antennae brownish. Palpi yellow; 5th joint of maxillary palpi feebly truncated at apex. *Pronotum* rounded above, with parallel margins; disk brown with a few small fulvous spots; lateral lobes yellow, with straight inferior

margin, posterior angle rounded. *Abdomen* light brown above, yellowish beneath; subgenital plate deeply notched at apex. *Legs* yellowish, a little mottled with brown. Posterior femora rather thick, feebly striated with brown; posterior tibiae armed with 6 internal, 7 external spines; posterior metatarsi with 6 denticles on each margin. *Elytra* extending to the apex of abdomen, rounded at apex; mirror almost twice as wide as long, oblique, rounded posteriorly and on the internal margin; anterior angle very obtuse; dividing vein strongly arcuated, a little before the middle; 3 strongly sinuated oblique veins; apical field very short, presenting only three rows of rather large and regular cells; lateral field high, with 5 regularly spaced, feebly curved veins; *Sc.* bearing 3 branches. Wings rudimentary. *Genitalia* with superior bridge widely notched, without lateral processes (figs. 59, 60).

*Length* of body 12 mm.; pronot. 3 mm.; post. fem. 9.2 mm.; elytra 7.5 mm.

This species differs from *virgulata* and *rufoniger* by its wider elytral mirror, apical field of the elytra shorter, without well-defined veins. In *rufoniger*, the three oblique veins start almost from the same point whereas they are well separated at base in the present species. The clypeo-frontal suture is almost straight and the posterior femora more slender. *Genitalia* quite different.

### 61. *Gryllopsis fascifrons* n. sp.

*Holotype*: Madras: Kanara Dist., Kanewadi, 1 ♀ (Paris Museum).

*Head* brown, shining, with 4 narrow yellow lines on the occiput; a narrow curved yellow band on the vertex, between the ocelli; frontal rostrum very wide, brown with a yellow spot around the anterior ocellus. Head viewed from front as wide as high; face yellow; clypeo-frontal suture very low, feebly arched in the middle. *Pronotum* slightly enlarged in front, brown, spotted with testaceous, finely pubescent; lateral lobes yellow with brown superior part. *Abdomen* fulvous, spotted with brown. *Legs* yellowish with a few brown spots. *Elytra* very short, widely separated on the median line. *Ovipositor* long, slender, with narrow apical valves.

*Length* of body 12.5 mm.; pronot. 3 mm.; post. fem. 9.5 mm.; elytra 1.2 mm.; ovipositor 12.5 mm.

This species is close to *histris*; it is larger, of a more uniform colouration with a transverse yellow band on the vertex; face shorter and wider; general shape a little more depressed.



## 62. *Gryllopsis sexlineata* n. sp.

*Holotype*: West Pakistan: Lyallpur (Abdullah, 7.VII. 1953), at light, 1 ♂; *allotype*: same locality, 1 ♀ (British Museum).

♂: Rather small species, close to *histrion*. *Head* big, rounded, shining brown above with 6 very neat and rather long yellow lines on the occiput; frontal rostrum very wide. *Face* yellow; the yellow colour forms above the ocellus a rounded drawing; clypeo-frontal suture angular, extending to the inferior level of the antennal sockets. *Antennae* pale brown; palpi yellow. *Pronotum* feebly narrowing in front, with very feebly concave anterior margin, straight posterior one; disk almost flat, yellowish with 4 large brown spots along the posterior margin, of which two long near the median line and two smaller ones, square on the sides; there are a few small brown spots in the anterior part; lateral lobes pale yellow with a brown band along the insertion on the disk; inferior margin straight, rounded angles. *Abdomen* brown at base, yellowish in the apical part; epiproct long, narrow, furrowed with feebly thickened margins, ending in a point; subgenital plate deeply divided at apex. *Legs* yellowish with brown hairs. Anterior tibiae presenting, as usual in *Gryllopsis*, a large external tympanum and also a small round one. Posterior femora rather thick, feebly striated with brown in the apical half of the external face. Posterior tibiae armed with 6 internal, 7 external spines; medio-internal apical spur longer than the superior; posterior metatarsi rather strongly armed with 6 internal, 8 external denticles, besides the apical spurs. *Elytra* extending to the apex of abdomen; mirror in the shape of a very wide oval; not divided; chords rather strongly curved, the first united to the mirror by two veinlets; 3 oblique veins, nearly straight and starting almost from the same point near the base of the stridulating vein; apical field long, with 6 veins and a reticulation composed of narrow, very regular cells; lateral field whitish, presenting 6 almost parallel veins; *Sc.* somewhat thickened, very distant from the second vein and bearing 3 branches. *Wings* caudate. *Genitalia* of the same type as *histrion* with superior bridge deeply notched with long lateral processes which are feebly swollen at apex; the inferior parts are long and narrow, with a small tooth near the apex of the internal face.

♀ (*allotype*): *Head*, *thorax* and *legs* as the male. *Elytra* extending to the extremity of abdomen, dark brown with whitish lateral field; veins of the dorsal field oblique, rather

regular; *Cu.* with two branches; transverse veinlets forming long, rather irregular areolae; lateral field with 6 regularly spaced veins; *Sc.* bearing one branch. Wings caudate. *Ovipositor* long and slender; apical valves narrow, the superior longer than the inferior ones, very acute at apex, with feebly convex superior margin.

*Length* of body 12.5 mm.; length with wings 18 mm.; pronot. 2.5 mm.; post. fem. ♂ 9 mm., ♀ 9.5 mm.; elytra 7.5 mm.; ovipositor 10.5 mm.

This species is an exception in the genus *Gryllopsis* with its long, caudate wings and its anterior tibiae perforated on both faces. These characters would induce one to place it in *Gryllus* but the general shape is that of a *Gryllopsis*, near to *histrion*, and the shape of the male genitalia is quite different from *Gryllus* and similar to a number of species of *Gryllopsis*.

### 63. *Gryllopsis nigrifrons* (Brunner)

1893. *Gryllodes nigrifrons* Brunner, *Ann. Mus. civ. Genova*, (2) 13, 199, pl. 6, fig. 68.

♂: *Head* globular. Forehead black; ocelli large, yellow. *Pronotum* brown, flat, feebly furrowed in the middle; lateral lobes square. *Legs*: Posterior tibiae armed with 4 spines on each superior margin. *Elytra* extending to the apex of 6th abdominal tergite; mirror lengthened, orbicular, non-divided; 3 oblique veins, incurved and broken at base; lateral field with 6 parallel veins; *Sc.* plain. No wings.

*Length* of body 18 mm.; pronot. 3.5 mm.; post. fem. 12 mm.; elytra 9 mm.

I have not seen the type of this species which is known only from Brunner's description.

*Range*.—BURMA: Tenasserim (type in Go. M.).

### 64. *Gryllopsis furcata* (Saussure)

(Fig. 61)

1877. *Gryllodes furcatus* Saussure, *Mém. Soc. Genève*, 25, 231, pl. 13 (XII), fig. 4.

1918. *Apterogryllus gestroi* Chopard, *Ann. Soc. ent. Fr.*, 86, 562, figs. 90–94.

♀: A rather large species, fulvous, pubescent; almost cylindrical, wholly apterous. *Head* round, yellowish, adorned with two transverse brown bands, one between the antennae, the other on the skull; occiput brown with 4 or 6 small yellow lines. *Pronotum* spotted with brown; piriform impresses

brown; lateral lobes square with rounded posterior angle. *Abdomen* marbled with brown above, the basal tergites brown. *Legs* strong; posterior femora very thick, brown at apex; posterior tibiae armed with 5 spines on each superior margin; posterior metatarsi armed above with 6 or 7 denticles. *Ovipositor* rather short, strong; apical valves acute, the superior longer than the inferior ones and separated by a deep notch.

*Range*.—INDIA: Central India (type in Saussure's collection, Go. M.). Mysore: Shimoga. Madras: Salem Dist.; Shevaroy Hills (Phil. M.). BURMA (Go. M.).

♂: *Head* big, presenting the same ornamentation as the female. *Pronotum* transverse with parallel margins. *Elytra* extending to the apex of 3rd abdominal tergite, dark brown; mirror almost triangular, divided by a short vein placed much backwards; diagonal vein short, straight; 2 feebly sinuated oblique veins; apical field almost null, presenting only a few small irregular cells. *Wings* rudimentary. *Genitalia* with superior bridge feebly notched, without lateral processes (fig. 61).

*Range*.—INDIA: Mysore: Shimoga (P.M.; Phil. M.).

The tibial tympanum tends to be obliterated (figs. 62, 63) in the female of this species.

## 65. *Gryllopsis babaulti* n. sp.

(Figs. 62, 63)

*Holotype*: N. Himalayas: Bajaura, Kangra Dist. (G. Babault, VI.1914), 1 ♂ (Paris Museum).

This species is close to the preceding. General shape short and rather stout. *Head* rounded. *Colouration* yellowish, adorned above with 5 wide longitudinal brown bands, the median of which extends to the anterior ocellus, above which it bifurcates. Face and cheeks yellow; frontal rostrum very wide, rounded; clypeo-frontal suture almost straight. Antennae and palpi yellow; 5th joint of the maxillary palpi rather strongly enlarged at apex, feebly securiform, with feebly oblique apical margin. *Pronotum* rather strongly narrowing in front, with straight anterior and posterior margins; disk feebly convex, yellowish with two wide brown bands along the anterior and posterior margins; lateral lobes yellowish, with straight inferior margin. *Abdomen* yellowish; subgenital plate wide, notched in the middle (figs. 62, 63). *Legs* strong, yellowish, pubescent. Anterior tibiae with a large external tympanum. Posterior femora very thick;

posterior tibiae armed with 6 spines on each margin; posterior metatarsi long, a little compressed, with flat superior face, the internal margin armed with 5-6 strong denticles, the external margin with 6-7 denticles. *Elytra* extending to the extremity of the abdomen, yellowish testaceous; mirror one and a half times as wide as long, ovoidal, divided a little before the middle by a curved vein; diagonal vein and chords short, the chords rather strongly curved, parallel; 3 sinuated oblique veins; apical field rather large, presenting 4 veins and a regular, almost square reticulation; lateral field high, with 5 regularly spaced veins; *Sc.* sinuated, bearing two branches. *Wings* rudimentary. *Genitalia* with superior bridge deeply notched, presenting two rather long processes, somewhat swollen at apex (figs. 62, 63).

*Length* of body 16 mm.; pronot. 4 mm.; width of pronot. 6 mm.; post. fem. 12 mm.; elytra 10 mm.

This species differs from *furcata* by the pronotum narrowing in front; the head more neatly coloured; and the elytra longer with almost oval mirror and more developed apical field. The genitalia are quite different.

## 66. *Gryllopsis femorata* Chopard

1935. *Gryllopsis femoratus* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 288.

♀: A rather large and strong species; *colour* testaceous-brown, pubescent. *Head* rounded, with feebly marked yellowish lines on the occiput; face rufous; cheeks yellow beneath the eyes; palpi yellow. *Pronotum* with parallel sides, anterior margin feebly concave, posterior margin straight, both of them ciliated; disk convex, rufous-brown, pubescent; lateral lobes yellowish, with inferior margin slightly ascending posteriorly, their superior part presenting an irregular dark brown band. *Abdomen* rufous, a little mottled with brown, very pubescent. *Legs* rufous, rather short, pubescent. Anterior tibiae perforated on their external face only. Posterior femora very stout and relatively short; posterior tibiae also rather short, armed with 5 internal, 6 external spines, these spines being long and strong, especially the internal ones; medio-internal apical spur a little longer than the superior one; external spurs relatively long, chiefly the median; posterior metatarsi rather thick, armed with 5-6 denticles on each margin. *Elytra* extending but little beyond the metanotum, meeting on the median line,

with oblique internal margin; humeral band brown; dorsal field with 5 straight veins; lateral field high, with 6 regularly distant, curved veins. *Ovipositor* rather short and slender, straight, with narrow, lanceolate apical valves.

*Length* of body 18 mm.; pronot. 4 mm.; post. fem. 10.5 mm.; ovipositor 9.5 mm. Male unknown.

*Range*.—INDIA: Madras: Salem (B.M.); Yercaud; Shevaroy Hills (B.M.). Mysore: Nedungadu (Phil. M.).

This species is distinguished by the elytra being relatively large, meeting on the median line.

## 67. *Gryllopsis robusta* Chopard

1933. *Gryllopsis robustus* Chopard, *Stylops*, 2, 115.

♀: Large and stout species, wholly apterous, *colouration* uniformly rufous-brown. *Head* as wide as pronotum, globular, shining brown; ocelli surrounded with yellow. Palpi yellowish; antennae brown. *Pronotum* transverse, with anterior margin straight, posterior margin feebly concave; sides somewhat convex, so that the disk is slightly narrowed anteriorly and posteriorly; disk convex, brownish, pubescent; lateral lobes concolorous, with inferior margin slightly ascending posteriorly. *Mesonotum* very short, brown with 6 small rufous spots along the posterior margin. *Metanotum* similar to the abdominal tergites. *Abdomen* stout, nearly cylindrical, rufous-brown, covered with a brown pubescence; below yellowish. *Legs* rufous, pubescent. Anterior tibiae perforated on their external face with a rather large, elongate tympanum. Posterior femora very thick; posterior tibiae armed with 6 rather strong spines on each margin; superior and median apical spurs subequal in length; metatarsi compressed, presenting two rows of 7–9 strong, blackish denticles. *Ovipositor* rather short, slender, with small, lanceolate apical valves.

♂: Male unknown.

*Length* of body 21 mm.; pronot. 4.5 mm.; width of pronot. 6 mm.; post. fem. 12 mm.; post. tib. 8.5 mm.; ovipositor 13 mm.

Rather close to *furcata*; a little smaller with wholly brown head, rufous abdomen and legs; pronotum slightly narrowing in front; ovipositor more slender with narrow and arcuated apical valves.

*Range*.—INDIA: Madras: Kamoakkan Hill; Chingleput Dist. (type, B.M.).

## 68. *Gryllopsis pubescens* Chopard

1928. *Gryllopsis pubescens* Chopard, *Rec. Ind. Mus.*, 30, 13.

♀: *Size* medium. *Colouration* testaceous varied with brown, thickly pubescent. *Head* as wide as pronotum, rounded; vertex slightly flattened; occiput and vertex rather dark brown, the former adorned with 6 yellow stripes; internal margin of eyes narrowly lined with yellow. Face yellowish, mottled with brown. Palpi with 4th joint shorter than 3rd and 5th. Antennae brown. *Pronotum* slightly narrowing both in front and behind, with anterior and posterior margins nearly straight; disk a little convex, mottled with brown; lateral lobes with inferior margin slightly ascending backwards, inferior part yellowish, the extreme margin and superior part dark brown. *Abdomen* nearly cylindrical, tergites mottled with brown along their posterior margin. *Legs* mottled with brown, tibiae feebly ringed. Posterior tibiae armed with 5 internal, 6 external spines, the 1st external being very short. *Elytra* very short, widely separated on the median line; internal margin very obliquely truncated; dorsal field very much reduced, with 3 small veins; lateral field larger, with 4 longitudinal veins. *Ovipositor* rather long, straight, with narrow, acute apical valves.

*Length* of body 12 mm.; pronot. 3.5 mm.; post. fem. 10.5 mm.; elytra 1.5 mm.; ovipositor 10 mm.

This species differs from other *Gryllopsis* in the somewhat depressed body and the abundant pubescence. It will be necessary to know the male before finally deciding to include it in this genus.

*Range*.—INDIA: W Bengal: Darjeeling Dist.; Ghumti, alt. c. 4,000 ft. (type, I.M.).

## 69. *Gryllopsis pallida* n. sp.

*Holotype*: Darjeeling, ♀ (Paris Museum).

*Size* medium; general *colouration* pale testaceous. *Head* very light brown above, with 4 longitudinal whitish lines; frontal rostrum a little wider than the first antennal joint, with somewhat projecting sides. Face whitish, very wide at the level of the insertion of mandibulae; clypeo-frontal suture straight; cheeks whitish. Antennae and palpi whitish; 5th joint of maxillary palpi longer than 3rd, scarcely widening at apex. *Pronotum* transverse, with feebly concave anterior margin, straight posterior one, very slightly convex sides;

disk almost flat, whitish with a few brown spots; lateral lobes whitish with straight inferior margin, feebly rounded angles. *Abdomen* yellowish with a feebly marked median brown band and a few small light brown spots. *Legs* of the same colour as the body. Anterior tibiae with a large external tympanum, armed with 3 apical spurs. Posterior tibiae rather strong, striated with light brown on their external face; posterior tibiae armed on each margin with 5 rather long and slender spines; metatarsi rather short, armed with 5 denticles on each superior margin. *Elytra* no longer than the metanotum, widely separated on the median line; dorsal field triangular, light brown, presenting 3 veins; lateral field larger, transparent, with 4 straight veins. *Ovipositor* long and slender, with narrow, acute apical valves.

*Length* of body 14.5 mm.; pronot. 4 mm.; width of pronot. 5.5 mm.; post. fem. 10.5 mm.; elytra 1.8 mm.; ovipositor 13 mm.

This species is distinguished by its light colouration, by the very wide face and the relatively narrow frontal rostrum.

## 70. *Gryllopsis arenicola* (Annandale)

1906. *Cophogryllus arenicola* Annandale, *Mém. As. Soc. Bengal*, 1, 209.

♀: Body cylindrical, stout. *Colour* varying with the state of preservation; in life pale testaceous, clouded with brown on the outer surface of the posterior femora, with brown markings at the lower extremity of all the femora, and sometimes with a row of dark spots across the head between the eyes. Surface smooth, with fine scattered hairs, irregularly shaped tracts of grey pubescence on the lateral lobes of the pronotum. *Head* large, globular, with broad inter-antennal space; *pronotum* large, much broader than long, simple. Tegmina persisting as minute vestiges. *Abdomen*: Cerci long, provided with long, fine hairs to the tips. *Ovipositor* not more than half the length of the abdomen, barely longer than the cerci, feebly expanded at tip.

*Total length* 27.5 mm.; breadth of pronotum 6 mm.; length 4.5 mm.; length of cerci 7 mm.; length of ovipositor 8 mm. (after Annandale).

This species is certainly not a *Cophogryllus*. It is more like a *Gryllopsis* or perhaps a *Eugryllodes* with which it agrees in the pale colouration and the short ovipositor. It will be necessary to know the male to decide exactly to which genus it must be ascribed. It is perhaps rather close to the preceding.

**Range.**—INDIA: Madras: Madura Dist.; Ramnad subdivision (type, I.M.).

Annandale states that this insect is not uncommon under stones on the sandy wastes at Mandapam, but only females were seen. Each had formed round itself an oval wall of sand grains, which were loosely fastened together. Above, this wall was fastened to the base of the stones, below it terminated in the general surface of the sand. Probably, the cricket protects itself in this way against centipedes, a species of *Scolopendra* being abundant under the stones.

### Genus GRYLLODES Saussure

1874. *Grylloides* Saussure, *Miss. sc. au Mexique*, 409. Saussure, 1877, *Mém. Soc. Genève*, **25**, 197 (part).  
1906. *Gryllolandreus* Bolivar, *Voy. Rothschild, Insectes*, 196, pl. 10, fig. 3.

**Type.**—*Gryllus sigillatus* Walker.

**Range.**—Cosmopolitan in tropical regions.

General shape as in *Gryllus*, but head small, a little flattened; frontal rostrum much narrower.

### Key to the species of GRYLLODES

- |  |                                  |
|--|----------------------------------|
| Elytra of male not overreaching the middle of abdomen, truncated at apex; elytra of female very short and widely separated. Wings almost absent in both sexes. | <i>sigillatus</i> (Walk.), p. 85 |
| Elytra extending to the extremity of abdomen in both sexes; wings caudate.   | <i>supplicans</i> (Walk.), p. 88 |

## 71. *Grylloides sigillatus* (Walker)

(Fig. 65)

1869. *Gryllus sigillatus* Walker, *Cat. Derm. Salt. Br. M.*, **1**, 46.  
1877. *Grylloides sigillatus* Saussure, *Mém. Soc. Genève*, **25**, 210.  
Chopard, 1924, *Rec. Ind. Mus.*, **26**, 183. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) **15**, 511. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130. Chopard, 1933, *Rev. Suisse Zool.*, **40**, 163. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 288. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 28. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 545.  
1900. *Homaloblemmus indicus* Bolivar, *Ann. Soc. ent. Fr.*, **68** (1899), 800.  
1928. *Gryllus pallidus* Chopard, *Rec. Ind. Mus.*, **30**, 11, fig. 19.  
1954. Biology, Khan, *Ind. J. Ent.*, **16**, 24.



Shape rather long, feebly depressed, rather strongly pubescent. *Head*: Colour brown with a wide transverse yellow band above and a narrower one, curved, between the ocelli; frontal rostrum not wider than the first antennal joint. Face short, yellow; clypeus spotted with brown; clypeo-frontal suture feebly arched. *Pronotum* transverse, with feebly concave anterior margin; disk almost flat, yellowish with a wide brown band along the posterior margin and a more or less

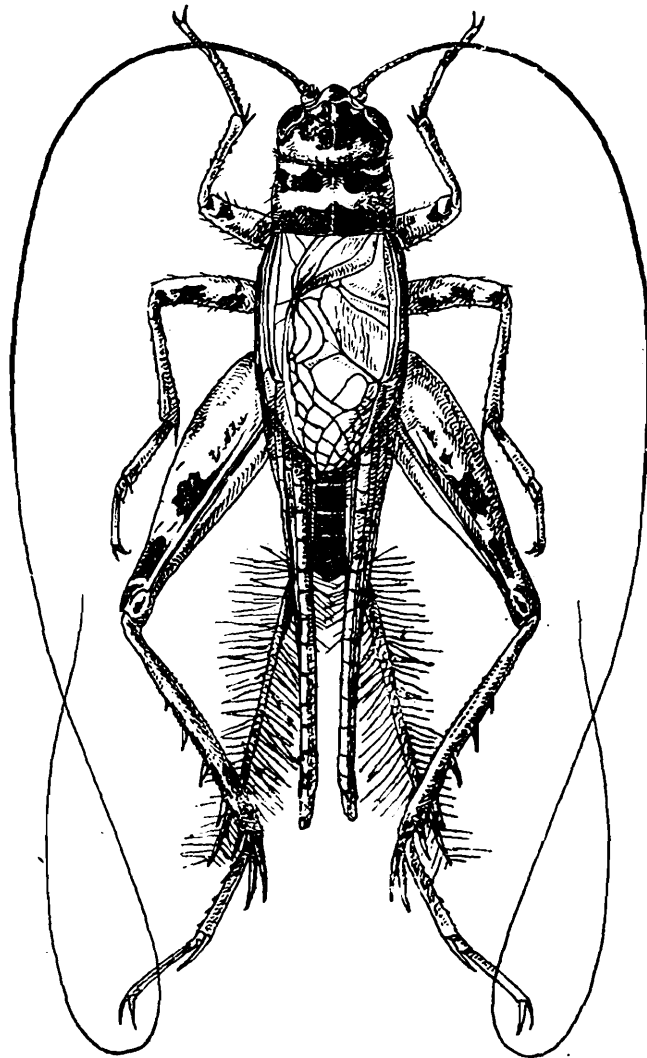
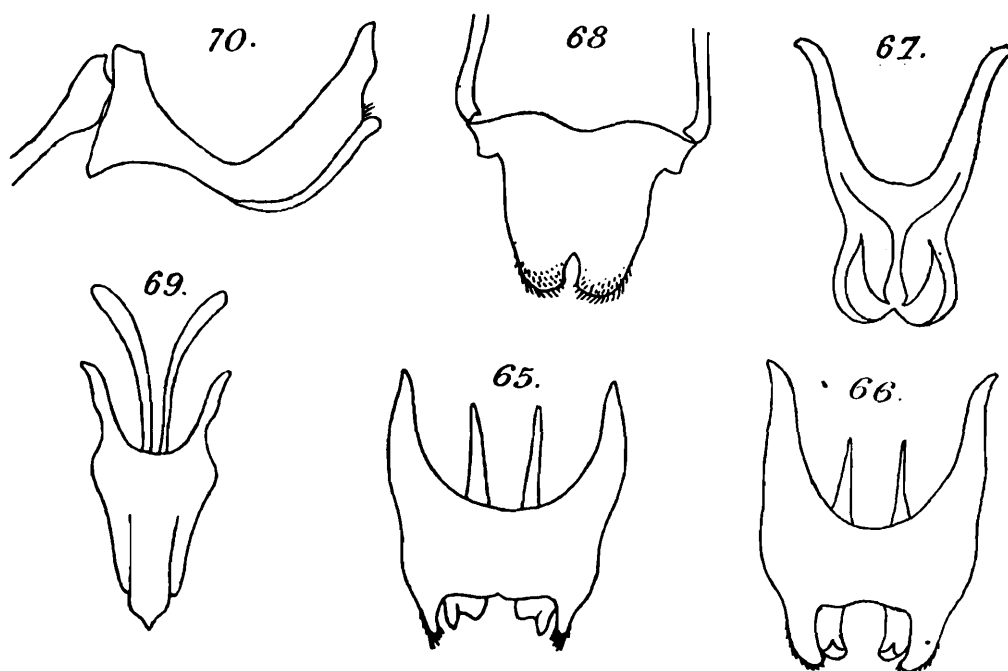


FIG. 64. *Gryllodes supplicans* (Walk.), ♂ ( $\times 3.3$ ).

important spot of the same colour on the impresses; lateral lobes rather low, with inferior margin ascending posteriorly; yellowish with a brown spot near the supero-anterior angle and a band of the same colour extending from the middle of the inferior margin to the posterior angle where it joins the brown band of the disk. *Abdomen* mottled with brown and presenting, in the female sex and in the nymphs, a wide

brown band on the first tergite. *Legs* yellowish with a few brown spots. Anterior tibiae perforated on their external face with a rather large oval tympanum. Posterior tibiae armed with 6 spines on each margin; posterior metatarsi rather long and slender, with 6 denticles on each superior margin.

♂: *Elytra* extending to the 3rd abdominal tergite, truncated and feebly rounded at apex; mirror quite apical, a little wider than long, rounded posteriorly, divided a little after the middle by a slightly sinuated vein; 2 oblique veins; apical field reduced to a few cells. Wings rudimentary. *Genitalia* of the *Gryllus* type with a very wide superior bridge (fig. 65).



FIGS. 65 to 70. Genitalia of: 65. *Gryllodes sigillatus*. 66. *G. supplicans*. 67. *Nemobiodes nigrocephalus*, inferior part. 68. *Callogryllus ornaticeps*. 69. *C. orientalis*. 70. *C. graveleyi*, side view.

♀: *Elytra* very short, widely separated on the median line; dorsal field triangular with feebly convex internal margin, presenting 3 veins, the first furcate near the apex; lateral field small, with 3 veins. *Ovipositor* long, straight, with narrow, lanceolate apical valves.

*Length* of body 15–18 mm.; post. fem. 11–12 mm.; elytra ♂ 5.5–6 mm., ♀ 1.5 mm.; ovipositor 12–15 mm.

This species is often found in houses and it is almost domestic in all tropical countries. It has sometimes been introduced into hot houses in Europe. It is also considered

in India as a common household pest causing considerable damage to textiles (N. H. Khan).

*Range*.—WEST PAKISTAN: Lyallpur (B.M.). INDIA: Rajputana (Rajasthan): Ajmer (C.I.E.). Central Provinces (Madhya Pradesh): Chikalda (B.M.). Bihar: Pachrukhi (Phil. M.). West Bengal: Calcutta (P.M.); Darjeeling Dist.; Savook (type of *G. pallidus*, I.M.). Assam: Ledo (Phil. M.). Orissa: Barkuda Island (I.M.). Malabar (Kerala): Pattambi (P.M.); Cochin (P.M.); Shambaganur; Chepat Polur (Phil. M.). Mysore: Shimoga; Nedungadu (P.M.); Masnigudi (G.M.); [Kodikam mts. (P.M.)?]. Madras: Madura; Nilgiri Hills; Hill Grove (P.M.); Kodaikanal (type of *Homaloblemmus indicus* in Coll. Pantel, P.M.). CEYLON: Batticaloa; Galle (B.M.); Bibile; Wellawaya; Battaramulla (Col. M.); numerous localities (Sandrasagara). MALAYA: Kuala Lumpur (R.M.). Malacca.

Annandale (1924, *Rec. Ind. Mus.*, 26, 183) states that he found this species in a crevice in the woodwork of a door and it was common in holes in a bungalow. He also found it emerging at dusk from holes in a termite mound. This does not mean that this cricket is termitophilous; like many other insects, it does not live with the termites but finds in certain parts of the termite mound a favourable condition of temperature and humidity. Khan has observed that the female lays her eggs in the ground; the average number of eggs is 170. The egg-laying continues during 2 to 11 days; the most favourable conditions for it are a temperature of 20–25° C. and a relative humidity of 80–82%.

## 72. *Gryllodes supplicans* (Walker)

(Figs. 64, 66)

- 1859. *Acheta supplicans* Walker, *Ann. Mag. nat. Hist.*, (3) 4, 221.
- 1925. *Gryllodes greeni* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 511, fig. 5.
- 1925. *Gryllus supplicans* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 510.
- 1928. *Gryllodes supplicans* Chopard, *Spol. Zeyl.*, 14, 149.  
Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 28. Sandrasagara, 1954, *Bombay nat. Hist. Soc.*, 52, 546.

This species is extremely close to the preceding but the elytra extend in both sexes to the abdominal extremity and the wings are lengthily caudate.

♂: In the male, the apical field of *elytra* is rather long, presenting 4 veins and a reticulation of somewhat irregular large cells; the *genitalia* are slightly different from those of *sigillatus* (fig. 66).

♀: The elytra of the female are quite different from those of *sigillatus*; the dorsal field presents rather regularly spaced veins, the *Cu.* bearing 3 branches; transverse veinlets numerous towards the base of elytron only, forming on the disk and near the apex a very wide and irregular reticulation. *Ovipositor* as in *sigillatus*.

*Length* of body 12–15 mm.; length with wings 21·5–24 mm.; post. fem. 9–11 mm.; elytra 8–9 mm.; ovipositor 12–12·5 mm.

*Range*.—INDIA: Central Provinces (Madhya Pradesh): Mandla (B.M.). Mysore: Shimoga (P.M.). CEYLON (type of *supplicans* and of *greeni* in B.M.): Matale; Bandarawela (I.M.); Balangoda (Col. M.).

The question arises whether this species could be a macrop-  
terous form of the preceding. Considering the extreme  
reduction of the elytra of the female of *sigillatus*, it seems  
difficult to admit the possibility of a return to a fully-winged  
form. Yet, Mr. A. S. K. Ghouri (1958, *Can. J. Zool.*, **36**,  
837, pl. I) has recently obtained some winged individuals of  
*G. sigillatus* in a breeding. If these winged insects are similar  
to *supplicans*, the latter should be considered as the winged  
condition of *sigillatus*.

## Genus NEMOBIODES Chopard

1918. *Nemobiodes* Chopard, *Ann. Soc. ent. Fr.*, **86** (1917), 521.

*Type*.—*Nemobiodes feai* Chopard.

*Range*.—Equatorial Africa, Ceylon, Siam.

This genus is composed of small species, very close to *Gryl-  
lus*, but with spines of the posterior tibiae a little movable,  
pubescent; in the males, the mirror is more or less confused,  
removed to the apex of the elytron, the apical field being  
almost obliterated. Females with reduced elytra or apterous.

### *Key to the species of NEMOBIODES*

Antero-internal margin of the mirror very long; 4 oblique veins. . . . .	<i>laeviceps</i> Chop., p. 89
Antero-external margin of the mirror very long; 3 oblique veins. . . . .	<i>nigrocephalus</i> Chop., p. 90

## 73. *Nemobiodes laeviceps* Chopard

1925. *Nemobiodes laeviceps* Chopard, *Ann. Mag. nat. Hist.*, (9)  
15, 513. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*,  
52, 546.

♂: *Size* rather small. *Colour* tawny-brown, head black,  
shining, without any markings. *Head* scarcely wider than

pronotum in front; occiput rounded; frontal rostrum wide. Face brown, shining. Palpi light brown; 5th joint of maxillary palpi equalling the 4th, slightly expanded at apex. Eyes rounded; ocelli small, yellow, disposed as a triangle. *Pronotum* brownish, very pubescent, marked with yellow along the humeral edge, with anterior and posterior margins straight; lateral lobes dark brown, with inferior margin slightly ascending backwards, posterior angle marked with yellowish. *Abdomen* rufous-brown. *Legs* of the same colour as the body, a little spotted with brown. Anterior tibiae slightly compressed, provided on the external face only with a small, oval tympanum. Posterior femora rather short; posterior tibiae armed with 5 spines on each margin; infero-external spur longer than the internal, median more than twice as long as the inferior, superior a little longer than the inferior, equalling the last spine; supero-internal spur a little shorter than the median. Posterior metatarsi armed with 5 denticles on each superior margin. *Elytra* leaving the two last abdominal tergites free, rounded at apex; mirror very wide, with antero-internal margin very long; 4 oblique veins; apical field very much reduced; lateral field black in its superior part, whitish inferiorly, presenting 5 rather regularly distant free veins, and the *Sc.* furcate near the apex.

*Length* of body 12 mm.; pronot. 2.1 mm.; post. fem. 7.5 mm.; post. tib. 4.5 mm.; elytra 6 mm.

*Range*.—CEYLON (without exact locality; type, B.M.): Woodside Urugala; Pulmoddai (Col. M.).

#### 74. *Nemobiodes nigrocephalus* Chopard

(Fig. 67)

1925. *Nemobiodes nigrocephalus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 514, fig. 6. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 546.

1928. *Nemobiodes ceylonicus* Chopard, *Spolia Zeyl.*, 14, 199, pl. 13, figs. 3, 4.

♂: *Size* small. *Colour* tawny with head black, shining. *Head* as wide as pronotum in front; occiput and vertex much rounded, shining; frontal rostrum wide. Face rufous-brown, shining. Palpi brown; 5th joint of maxillary ones equalling the 4th, slightly enlarged and truncated at apex. *Pronotum* yellowish-brown, with two large rufous impresses and a few small brown spots on the disk; anterior and posterior

margins straight; lateral lobes with almost straight inferior margin, blackish, a little paler forwards, very dark and feebly shining backwards. *Abdomen* rufous-brown. *Legs* concolorous, spotted with brown. Anterior tibiae presenting a large oval external tympanum. Posterior femora rather thick, banded with brown on their external face. Posterior tibiae armed with 5 spines on each margin; apical spurs as in the preceding species. Posterior metatarsi rather long, armed with 6 or 7 denticles on each superior margin. *Elytra* extending to the apex of abdomen, blackish, with veins yellowish, chiefly at apex and near the internal margin; mirror transverse, with antero-external margin long; diagonal vein long, a little curved; 3 oblique veins; apical field very much reduced; lateral field almost black with a narrow yellow band along the humeral edge, presenting 4 nearly parallel veins. *Genitalia* forming a rather long piece, feebly notched at apex (fig. 67).

♀: Wholly apterous. *Head* and *pronotum* as in the male: metanotum and first abdominal tergite narrowly lined with yellow posteriorly, the other abdominal tergites brown, pubescent. *Legs* as in the male. *Ovipositor* rather long, slender, with apical valves lanceolate, the superior one with 6 small denticles along the inferior margin.

*Length* of body 7.2–9.5 mm.; pronot. 1.6–2 mm.; post fem. 5–6.5 mm.; elytra ♂ 4.5–5 mm.; ovipositor 7.5 mm.

The female of this species is very remarkable in the shape of the ovipositor apex. If this character were found in the future in other species of the genus, it would have a definite generic value.

*Range*.—CEYLON: Peradeniya (type of *nigrocephalus*, B.M.): Urugala (type of *ceylonicus*, Col. M.); Matale; Mousakande; Gammaduwa; Hakgala; Bintenne (Col. M.).

### Genus CALLOGRYLLUS Sjöstedt

1909. *Callogryllus* Sjöstedt, *Kilimandjaro-Meru Expedition*, 3, 105.

*Type*.—*Callogryllus kilimandjaricus* Sjöstedt.

*Range*.—Tropical Africa, India, Siam.

This genus differs from *Gryllus* only in the shortened elytra of the males, with badly defined mirror, almost lost in the apical reticulation; apical field very reduced. The females do not differ from the females of *Gryllus* with short elytra.

*Key to the species of CALLOGRYLLUS*

- |   |  |                                 |   |
|---|--|---------------------------------|---|
| 1 | Head blackish above, without any ornament; small (♀ 10 mm.); elytra very short, extending only to the apex of first abdominal tergite. | <i>curtipennis</i> n. sp. p. 98 |   |
|   | Head with a yellow band or a spot along the internal margin of the eyes. . . . .   |                                 | 2 |
| 2 | Head chocolate-brown, with a yellow spot between the lateral ocelli and the eyes (size rather large 17 mm.).                           | <i>gravelyi</i> (Chop.), p. 93  |   |
|   | Head blackish with a yellow band extending from the occiput along the eyes and antennal sockets to the apex of the rostrum. . . . .    |                                 | 3 |
| 3 | Yellow bands of the head ending on the sides of the rostrum. . . . .   |                                 | 4 |
|   | Yellow bands of the head united by a transverse band at top of the frontal rostrum. . . . .  | <i>ornaticeps</i> n. sp. p. 96  |   |
| 4 | Elytra of female very short, with strongly oblique internal margin.  | <i>subopacus</i> (Bol.), p. 95  |   |
|   | Elytra of female extending at least to the apex of second abdominal tergite  |                                 | 5 |
| 5 | Size rather large (♀ 14-16 mm.); elytra of female longer (3.5 mm.).  | <i>orientalis</i> (Bol.), p. 92 |   |
|   | Size smaller (♀ 12 mm.); elytra of female shorter (2 mm.).   | <i>bilineatus</i> (Bol.), p. 93 |   |

**75. *Callogryllus orientalis* (Bolivar)**

(Fig. 69)

1900. *Scapsipedus orientalis* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 799.

1933. *Callogryllus orientalis*, Chopard, *Rev. Suisse Zool.*, 40, 164.

*Size* rather large. *Colour* blackish with a rather abundant, greyish pubescence. *Head* black, shining, adorned on each side with a yellow line extending from the occiput, along the eye, almost to the apex of the frontal rostrum, which is almost three times as wide as the first antennal joint. *Face* blackish, declivent, but not at all flattened as in the genus *Scapsipedus* Sauss. *Pronotum* as long as wide, feebly widening in front, tomentose, a little mottled with rufous; lateral lobes black, more or less spotted with rufous in the inferior part. *Legs* brown, strongly pubescent. *Anterior tibiae* perforated with an oval tympanum on the external face. *Posterior femora* rather thick, brown with rufous base; *posterior tibiae* armed with 6-8 spines on each superior margin.

♂: *Elytra* extending scarcely to the apex of the 4th abdominal tergite, rounded at apex; mirror simply indicated by a bifurcation of the diagonal vein; this vein and the chords are long, almost straight; apical field reduced to a few cells; 2 oblique veins, very close to one another and parallel; anal field very short; lateral field high, black, with 5 straight, regularly distant veins. No wings. *Genitalia* long and narrow (fig. 69).

♀: Somewhat larger than the male. *Elytra* extending to the apex of the 4th abdominal tergite, a little rounded at apex, with oblique internal margin; dorsal field presenting three strong, feebly oblique veins; cubito-anal field with an irregular branch of the *Cu.* and a few anastomosed transverse veinlets; lateral field as in the male. No wings. *Ovipositor* long, straight, with narrow, lanceolate apical valves.

*Length* of body ♂ 12 mm., ♀ 14–15 mm.; pronot. ♂ 2.8 mm., ♀ 3 mm.; post. fem. ♂ 9 mm., ♀ 10–12 mm.; elytra ♂ 2.8 mm., ♀ 2.5–2.8 mm.; ovipositor 11–13.5 mm.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodaikanal (type, Pantel's collection, P.M.); Palni Hills; Pumbarai (G.M.).

## 76. *Callogryllus bilineatus* (Bolivar)

1900. *Scapsipedus orientalis* var. *bilineatus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 799.

♀: Smaller than the preceding. *Head* presenting the same pattern. *Abdomen* with a longitudinal rufous band on each side. *Elytra* scarcely exceeding the apex of the first abdominal tergite, slightly crossing in the median line, with internal margin oblique, apex rounded; dorsal field presenting four plain, nearly straight veins at regular internals; transverse veinlets very scarce; lateral field with four curved veins and the *Sc.* furcate near the apex.

*Length* of body 12 mm.; pronot. 2.5 mm.; post. fem. 8.5 mm.; elytra 2 mm.; ovipositor 9 mm.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodaikanal (type, Pantel's collection, P.M.).

## 77. *Callogryllus gravelyi* (Chopard)

(Figs. 70, 71)

1928. *Gryllus gravelyi* Chopard, *Rec. Ind. Mus.*, 30, 9, figs. 15, 16.

♂: *Size* rather large. *Colour* dark brown; body and legs very pubescent. *Head* chocolate-brown, with a yellow spot



between the lateral ocelli and the eyes. Face brown. *Pronotum* nearly square, with almost parallel margins; disk slightly convex, uniformly brown, with a silky pubescence; lateral lobes with inferior margin slightly ascending posteriorly, their inferior part a little lighter. *Abdomen* brown, with a fine silky pubescence. *Legs* brown, the posterior ones long. Posterior femora a little reddish at base; posterior

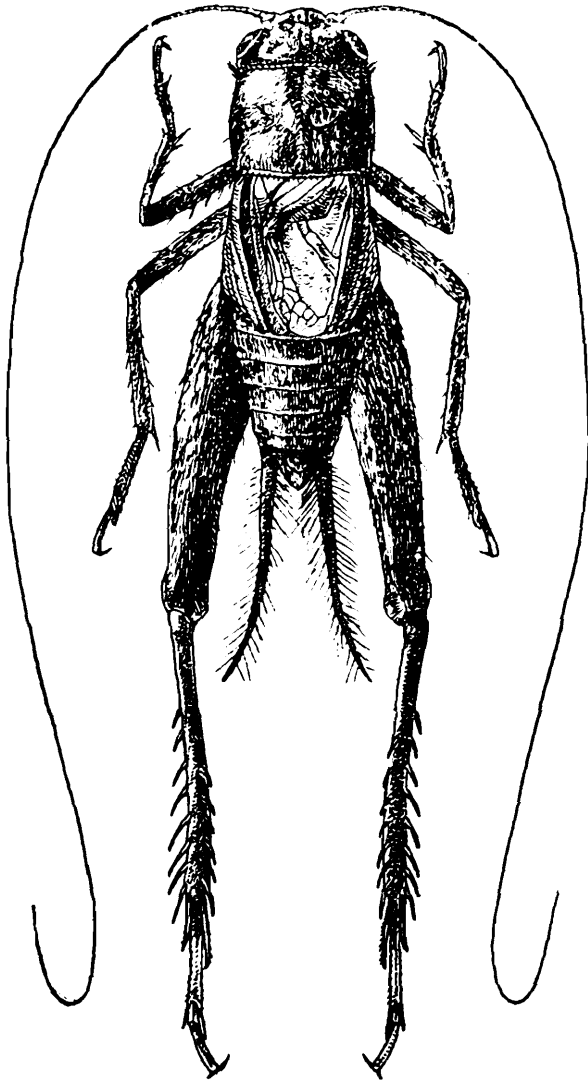


FIG. 71. *Callogryllus graveleyi* (Chop.), ♂ ( $\times 2.5$ ).

tibiae armed with 7 external, 6 internal spines; metatarsi long, serrulate on both superior margins. *Elytra* extending to the middle of abdomen only, shining brown; mirror very much reduced, almost lost among the apical reticulation; diagonal vein and chords almost straight, close to one another; 2 oblique veins; lateral field black, with 7 regularly curved veins close together, and the Sc. bearing two branches.

*Genitalia* narrow, with bent sides (fig. 70). ♀: Similar to the male but colour lighter; occiput showing traces of light bands. *Elytra* nearly as long as in the male; dorsal field with very intricate venation; veins, except those of the humeral margin, being lost amongst an abundant reticulation; lateral field as in male; *Sc.* with one branch only. *Ovipositor* straight, rather long and slender, with apical valves small, lanceolate.

*Length* of body 17 mm.; pronot. 4.5 mm.; post. fem. ♂ 14.5 mm., ♀ 15.5 mm.; elytra ♂ 6 mm., ♀ 4.5 mm.; ovipositor 16.5 mm.

This species is close to *orientalis* (Bol.); it is a little larger; the elytral mirror of the male is very similar, but the female presents an elytral venation much closer and more intricate. On the other hand, the species shows evident affinities with the true *Gryllus*, chiefly with the species of the *himalayanus* group.

*Range*.—INDIA: Travancore (Kerala); Cochin, forest tramway, mile 10 to 14 (type, I.M.); Parambikulam (P.M.).

## 78. *Callogryllus subopacus* (Bol.)

1900 *Gryllodes subopacus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 798.

♀: *Size* small. *Colour* brown, pubescent. *Head* black, shining above, with 4 short yellow lines on the occiput and, on each side, a narrow band of the same colour, extending along the eye and the antennal socket, to the extremity of the frontal rostrum. *Face* dark brown, shining; clypeo-frontal suture angular, extending to the inferior level of the antennal sockets. *Pronotum* brown, more or less varied with fulvous; lateral lobes widely fulvous with black inferior margin. *Abdomen* brownish, very pubescent. *Legs* brown; posterior femora striated at their external face; posterior tibiae armed with 5 internal, 6 external spines. *Elytra* short but almost contiguous on the median line; dorsal field with 5 parallel veins, one of which (*Cu.*) is furcate a little before the apex; lateral field high, with 4 or 5 parallel, yellow veins. No wings. *Ovipositor* rather short and thick, straight, with wide, lanceolate, apical valves.

*Length* of body 10–13 mm.; pronot. 2.5–3 mm.; post. fem. 8–10 mm.; elytra 1.2–1.6 mm.; ovipositor 6.5–9.5 mm.

Male unknown.

This small species is very close to *C. bilineatus* (Bol.), from which it differs chiefly in the much shorter elytra.

*Range*.—INDIA: Madras: Kodaikanal (type, Pantel's collection, P.M.); Valparadi (P.M.).

79. **Callogryllus ornaticeps** n. sp.

(Figs. 68, 72)

*Holotype*: Siam: upper Pram River (W. R. S. Ladell, 12.IV.1926), ♂; *allotype*: same locality, ♀ (British Museum).

*Head* as wide as pronotum, black, shining, with a narrow, very neat, yellow band on each side of the occiput, extending

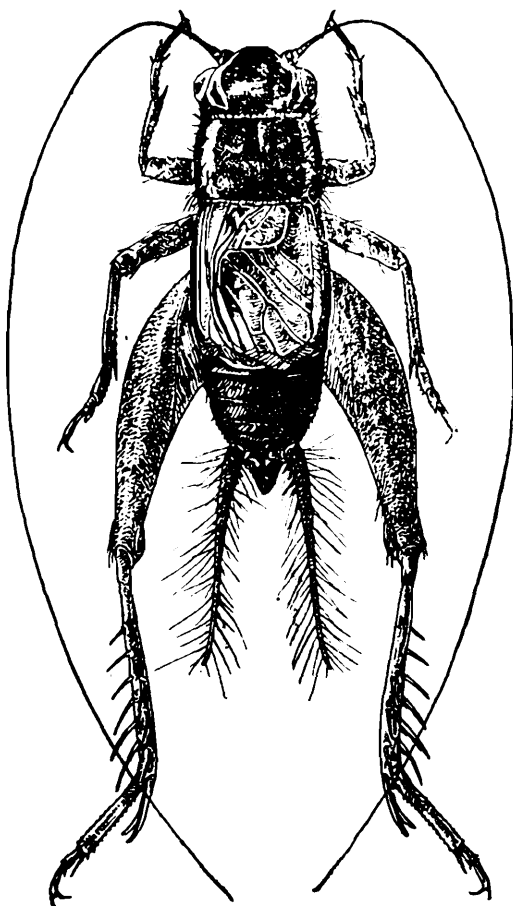


FIG. 72. *Callogryllus ornaticeps* n. sp. ♀ ( $\times 3.0$ ).

along the eye and the antennal socket to the extremity of the rostrum, where these two bands are united by a transverse band of the same colour; behind the eye, the band is doubled by a short yellow line; vertex sloping; frontal rostrum wide, a little truncated. Face rather strongly swollen, shining brown; clypeo-frontal suture angulate, somewhat overreaching the inferior level of the antennal sockets; anteclypeus presenting in the middle a triangular yellow spot.

Cheeks brown with a yellow band behind the eyes. Eyes rounded, moderately projecting; ocelli small, the anterior one a little above the yellow band of the frontal rostrum. Antennae and palpi brown; 5th joint of the maxillary palpi darker, large, feebly securiform, with slightly convex apical margin, which is almost as long as the inferior margin. *Pronotum* one and a half times as wide as long, with very slightly concave anterior margin, straight posterior one, sides rather strongly convex; disk feebly convex, dull black, with a yellow band on each side; there is no pubescence on the disk but the anterior and posterior margins are provided with long bristles on the sides; lateral lobes rather low, convex, black with a small yellow spot in the anterior angle and near the posterior one; inferior margin strongly ascending backwards. *Abdomen* black above, pubescent, brownish beneath. *Legs* rather short, yellowish mottled with brown and covered with an abundant brown pubescence in which are mixed long bristles. Anterior tibiae perforated on the external face with a rather large oval tympanum, armed at apex with two long spurs; metatarsi compressed, long, furnished beneath with two rows of spiniform bristles. Median tibiae armed with 3 apical spurs. Posterior femora short and thick, striated with brown; posterior tibiae armed with 5 spines on each margin; infero-apical spurs rather long, feebly unequal in length; supero-external spur equalling the inferior, the median twice as long; median and supero-internal spurs long, of the same length; posterior metatarsi long, feebly compressed, armed above with 5 internal, 7 external denticles.

♂: *Elytra* extending to the apex of 5th abdominal tergite, a little rounded at apex; dorsal field shining brown with a narrow yellowish band along the external and apical margins; mirror reduced to a very badly defined apical cell; diagonal vein and chords very long; stridulating vein very remote from the *Cu.*; 2 oblique veins; lateral field black with 3 regularly spaced veins. No wings. *Genitalia* presenting a rather wide, triangular superior piece, which is narrowly and rather deeply notched at apex (fig. 68).

♀: *Elytra* very short, not longer than the metanotum, feebly overlapping in the median line, with internal and apical margins feebly and regularly convex; dorsal field shining brown, presenting 6 straight, regularly distant, plain veins; transverse veinlets scarce; lateral field high, with strongly convex inferior margin, presenting 3 veins and the *Sc.* No wings. *Ovipositor* rather long and slender, feebly curved, with apical valves very narrow, smooth, acute.

*Length* of body 9 mm.; pronot. 2 mm.; post. fem. 6.2 mm.; elytra ♂ 3.7 mm., ♀ 1.2 mm.; ovipositor 5 mm.

This fine little species differs from the preceding ones in the colouration of the head.

### 80. *Callogryllus curtipennis* n. sp.

*Holotype*: Madras: Trichinopoly (C. Leigh, 1920), ♀ (Academy of Natural Sciences, Philadelphia).

*Size* rather small. *Colour* dark brown with the legs fulvous. *Head* shining above, without any ornamentation; face brown. *Pronotum* almost as long as broad posteriorly, slightly widening in front, with anterior and posterior margins straight, sides feebly convex; disk almost flat, brown, covered with a fine pubescence and presenting long bristles along the margins and on the sides; lateral lobes with inferior margin feebly ascending backwards, brown with a rather large yellowish spot in the anterior angle. *Abdomen* brown. *Legs* rather light fulvous. Anterior tibiae perforated with a large external tympanum. Posterior femora rather stout; posterior tibiae armed with 5 spines on each margin; posterior metatarsi armed with 4–5 denticles on each superior margin. *Elytra* very short, feebly crossing in the median line, with oblique apical margin; dorsal field presenting 4 veins, one of which is furcate; lateral field with 4 curved veins; *Sc.* plain, straight. No wings. *Ovipositor* broken off at base.

*Length* of body 9.5 mm.; pronot. 2.5 mm.; post. fem. 6 mm.; elytra 1.1 mm.

Although the male is not known, it seems that this small species may be considered a *Callogryllus* on account of its general shape and very short elytra.

### Genus *COPHOGRYLLUS* Saussure

1877. *Cophogryllus* Saussure, *Mém. Soc. Genève*, 25, 232.

*Type*.—*Cophogryllus delalandi* Saussure.

*Range*.—Tropical Africa and Asia, South America.

General shape as in *Gryllus* but both sexes completely apterous<sup>1</sup>, anterior tibiae without auditory foramina.

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<sup>1</sup> The males are unknown in many species.

*Key to the species of COPHOGRYLLUS*

- |   |  |                                  |   |
|---|--|----------------------------------|---|
| 1 | Body somewhat depressed; black, shining, with a yellow band on the sides of the head and pronotum. | <i>bilineatus</i> n. sp., p. 105 |   |
|   | Very feebly depressed or cylindrical; colouration different. . . . .                               |                                  | 2 |
| 2 | Very small (7.5 mm.), black; maxillary palpi white. . . . .  | <i>albipalpus</i> Sauss., p. 104 |   |
|   | Size variable; colouration different. . . . .  |                                  | 3 |
| 3 | Brown, adorned with above large rufous spots. . . . .  | <i>ornatus</i> Chop., p. 100     |   |
|   | General colouration much more uniform. . . . .   |                                  | 4 |
| 4 | General shape very narrow. . . . .   | <i>angustus</i> Chop., p. 101    |   |
|   | General shape not so narrow. . . . .   |                                  | 5 |
| 5 | Rather large species (17 mm.); pronotum rather strongly widening in front. . . . .                 | <i>maindroni</i> Chop., p. 100   |   |
|   | Smaller species (7-11 mm.); pronotum feebly or not at all enlarged in front. . . . .               |                                  | 6 |
| 6 | Head adorned above with four testaceous lines. . . . .   | <i>martini</i> (Bol.), p. 99     |   |
|   | Head shining brown, without ornaments. . . . .   |                                  | 7 |
| 7 | Very small species (7 mm.). . . . .  | <i>brevipes</i> Chop., p. 104    |   |
|   | Larger species (10-11 mm.). . . . .  |                                  | 8 |
| 8 | Body very pubescent; ovipositor very short (5.5 mm.). . . . .                                      | <i>brunneus</i> Chop., p. 102    |   |
|   | Body not so pubescent; ovipositor longer (7.5-8.5 mm.). . . . .                                    |                                  | 9 |
| 9 | Lateral lobes of pronotum widely spotted with yellowish. . . . .                                   | <i>carli</i> Chop., p. 102       |   |
|   | Lateral lobes of pronotum without yellow spot. . . . .   | <i>brunneri</i> n. sp., p. 103   |   |

**81. *Cophogryllus martini* (Bolivar)**

1900. *Cophogryllus martini* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 798. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 515, fig. 7. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 547.

♀: Body cylindrical, apterous; rufous with a brown band extending on each side from the eye to the base of the posterior femora, covering the superior part of the lateral lobes of the pronotum; pubescent with mixed long black bristles. *Head* globular, shining, brown above with 4 testaceous lines on the occiput. Face yellowish. Antennae brown with light first article. Palpi whitish. *Pronotum* transverse, with feebly concave anterior and posterior margins, sides a little convex. *Legs* rufo-testaceous. Anterior and median femora a little spotted with brown; anterior tibiae unperforated. Posterior femora very stout; posterior tibiae armed with 5 spines on

each margin; metatarsi with 6 internal, 8 external denticles. *Ovipositor* rather long and slender, with very narrow apical valves. *Cerci* very long.

*Length* of body 11 mm.; pronot. 2.8 mm.; post. fem. 9 mm.; *ovipositor* 12.5 mm.

*Range*.—INDIA: Madras: Trichinopoly (type, Pantel's collection, P.M.) (Phil. M.). CEYLON: Sigiriya (Col. M.).

## 82. *Cophogryllus ornatus* Chopard

1928. *Cophogryllus ornatus* Chopard, *Rec. Ind. Mus.*, 30, 14, fig. 22.

♀: Small, apterous. *Colour* dark brown, adorned with rufous spots. *Head* as wide as pronotum in front, brown, shining; vertex a little sloping; frontal rostrum narrow. Face rufous. Palpi yellowish; 4th joint of maxillary palpi much shorter than 3rd; 5th large, triangular. *Pronotum* shining, narrowing a little in front and behind; brown, variegated with rufous; disk convex, with sides much rounded; lateral lobes brown, with inferior margin slightly ascending posteriorly, anterior angle of about 90°, posterior one a little rounded. Mesonotum, metanotum and abdominal tergites brown, adorned with two large rufous spots. *Cerci* brown. *Legs* rather long, yellowish-rufous. Anterior tibiae unperforated. Posterior femora rather thick, striated with brown on their external face; posterior tibiae rather short, armed with 3 spines on each margin; tarsi long, especially the metatarsus. *Ovipositor* rather short, straight, with apical valves a little curved, beak-like, the inferior being shorter than the superior ones.

*Length* of body 8.5 mm.; post. fem. 6.5 mm.; *ovipositor* 5 mm.

In well-preserved specimens, the pubescence is more abundant than on the type, with the result that the pronotum is not so shining and the rufous spots less conspicuous.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Mungphu, alt. 4,000 ft. (type in I.M.); Kurseong (P.M.); Jor Pokhri, alt. 4,800 ft. (P.M.).

## 83. *Cophogryllus maindroni* Chopard

1928. *Cophogryllus maindroni* Chopard, *Rec. Ind. Mus.*, 30, 16.

♀: *Size* rather large, entirely apterous; shape and general appearance of a female *Gryllopsis*, but with a large head and pronotum rather strongly widening in front. *Head* globular,

brown, shining; occiput with indistinct short light bands. Face rufous; cheeks spotted with yellow. Palpi whitish; 4th joint of maxillary palpi equal to 3rd; 5th longer, feebly enlarged at apex. Antennae brown, slender. Eyes much flattened, their convexity not stronger than that of the head; ocelli yellow. *Pronotum* widening in front, with anterior and posterior margins nearly straight; disk convex, brown; lateral lobes with inferior margin slightly ascending posteriorly, their inferior part yellowish, especially in the anterior region, the extreme margin brown. Mesonotum, metanotum and abdominal tergites brown; ventral part of the body yellowish. *Legs* lighter than the body. Anterior and median tibiae a little compressed, anterior tibiae without any perforation; metatarsi a little longer than the other two joints together. Posterior femora thick, their external face unicolourous, somewhat rufous; tibiae armed with 5 spines on each margin; apical spurs strong, the two large internal ones equal in length, the externo-median one very long; metatarsi compressed, rather long, armed with 5 internal and 7 external denticles. *Ovipositor* rather long, very slender, with apical valves extremely narrow and acute.

*Length* of body 17 mm.; pronot. 4 mm.; width of pronot. anteriorly 5.1 mm.; post. fem. 12 mm.; ovipositor 12.5 mm.

Male unknown.

Distinguished from the other Indian species of *Cophogryllus* by its large size, the pronotum widening in front, and by the very narrow apical valves of the ovipositor.

*Range*.—INDIA: Malabar Coast (Kerala): Mahé (type in P.M.).

#### 84. *Cophogryllus angustus* Chopard

1928. *Cophogryllus angustus* Chopard, *Rec. Ind. Mus.*, 30, 16, fig. 23.

♀: *Size* medium; elongate, narrow. *Colour* uniformly blackish-brown with rufous legs. *Head* rounded, shining; frontal rostrum rather narrow. Palpi rufous; 4th joint of maxillary palpi a little shorter than 3rd; 5th triangular, obliquely truncated at apex. *Pronotum* a little longer than wide, slightly narrowing posteriorly; anterior margin a little concave, posterior margin straight; lateral lobes rather high, with posterior angle very much rounded. Metanotum and abdomen blackish-brown; abdomen as wide as pronotum, with nearly parallel sides. *Legs* rather long. Anterior tibiae unperforated; anterior and median tarsi short, the metatarsus equalling the 3rd joint. Posterior femora rather strong, a



little darker than the other legs; posterior tibiae much shorter than the femora, armed with 5 external and 4 internal spines; metatarsi rather strong, pubescent, with 4–5 denticles on each margin. *Ovipositor* rather long, slender, with very narrow, lanceolate, apical valves.

*Length* of body 13.5 mm.; pronot. 3 mm.; post. fem. 9 mm.; post. tibiae 6 mm.; ovipositor 7 mm.

Male unknown.

This species is clearly distinguished by its general shape, relatively long and narrow.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Singla (type, P.M.).

### 85. *Cophogryllus brunneus* Chopard

1928. *Cophogryllus brunneus* Chopard, *Rec. Ind. Mus.*, 30, 15.

♀: *Size* small. *Colour* brown, pubescent. *Head* as wide as pronotum, black, shining, without any ornament; vertex slightly sloping; frontal rostrum wide. *Face* brown. *Antennae* rufous. *Ocelli* very small. *Pronotum* wide, rather markedly narrowing posteriorly; anterior margin a little concave, posterior one straight; disk brown, pubescent, very slightly tinged with yellowish near the posterior margin; lateral lobes black, with inferior margin very slightly ascending posteriorly. *Abdomen* rather narrow, strongly pubescent, brownish. *Legs* brownish, posterior femora rather thick; posterior tibiae armed with 5 external and 4 internal spines; metatarsi rather long, serrulate. *Ovipositor* short, straight, with apical valves small and very acute.

*Length* of body 10 mm.; post. fem. 7 mm.; ovipositor 5.5 mm.

Male unknown.

This small species has very much the same general shape as *C. martini* Bol., but its head is wholly black above and the ovipositor is much shorter.

*Range*.—INDIA: Bihar: Siripur; Saran (type, I.M.).

### 86. *Cophogryllus carli* Chopard

1933. *Cophogryllus carli* Chopard, *Rev. Suisse Zool.*, 40, 164.

♀: *Small*; body rather elongate, brown, feebly pubescent. *Head* big, rounded, shining chestnut-brown, without ornaments; frontal rostrum very wide. *Face* lighter; eyes rounded, rather small, feebly projecting; ocelli small, oval, yellow. *Antennae* brownish. *Palpi* testaceous; 4th joint of maxillary palpi a little shorter than 3rd. *Pronotum* rather

strongly widening in front, with straight anterior and posterior margins; disk convex, brown, feebly pubescent, marked with yellowish near the anterior and posterior margins and on the impresses; lateral lobes widely spotted with yellowish in their inferior half, their inferior margin narrowly brown, feebly ascending posteriorly. Metanotum and abdomen brown, with a yellowish, lateral spot on the metanotum and the first abdominal tergites. Inferior part of the body testaceous. *Legs* rather short, lighter than the body. Posterior femora thick, feebly striated with brown on their external face; posterior tibiae short, armed with 5 spines on each margin; apical spurs strong, the two large internal subequal in length; metatarsi strong, compressed, armed with 5 denticles on each superior margin. *Ovipositor* rather short and strong, with apical valves small, lanceolate, acute.

*Length* of body 11 mm.; pronot. 2.6 mm.; post. fem. 8.5 mm.; post. tib. 5 mm.; ovipositor 8.5 mm.

This small species reminds one of *C. brunneus* Chop. and *C. angustus* Chop.; it is almost as narrow as the latter, with pronotum widening in front; it is less pubescent than the former with lateral lobes of the pronotum widely yellowish.

*Range*.—INDIA: Madras: Palni Hills; Tandikudi (type, Go.M.).

### 87. *Cophogryllus brunneri* n. sp.

*Holotype*: Ceylon (Brunner's collection, No. 15778, Vienna Museum), ♀.

Very close to the preceding. *Head* dark brown, shining; vertex sloping; frontal rostrum as broad as the first antennal joint. Face dark rufous-brown, presenting between the antennae a few small deep pits; clypeo-frontal suture very feebly convex; clypeus rather strongly swollen. Antennae and palpi brown; 4th joint of maxillary palpi longer and more slender than 3rd; 5th very large, triangular with apical margin obliquely truncated. *Pronotum* one and a quarter times as broad as long; anterior margin feebly convex, posterior one straight, sides convex; disk feebly convex, finely pubescent, dark brown; lateral lobes of the same colour as the disk, with inferior margin ascending posteriorly. *Abdomen* dark brown, finely pubescent, with feebly marked rufous spots. *Legs*: Anterior and median legs rufous, the femora feebly darkened at apex. Posterior legs wanting. *Ovipositor* rather long, straight, with apical valves small, in the shape of a beak, the superior ones limited at base by a deep notch.

*Length* of body 11 mm.; pronot. 2.5 mm.; ovipositor 7.5 mm.

### 88. *Cophogryllus brevipes* Chopard

1933. *Cophogryllus brevipes* Chopard, *Stylops*, 2, 116, fig. 2.

♀: *Size* small. *Colour* blackish-brown. *Head* as wide as pronotum, entirely black; occiput feebly convex, vertex sloping; frontal rostrum wide. Face somewhat rufous, rather strongly convex. Palpi brownish, rather short; 4th joint of maxillary palpi equalling the 3rd; 5th a little longer, somewhat dilated at apex. Antennae brownish. *Pronotum* transverse, with anterior and posterior margins feebly concave, sides a little convex; lateral lobes with inferior margin slightly ascending posteriorly. *Abdomen* slightly narrowed at base, brown above, finely pubescent, rufous beneath. *Legs* brown, short, especially the anterior and median ones; anterior tibiae a little shorter than the femora, scarcely longer than the tarsi. Posterior femora thick, yellowish-brown, darkened at apex and somewhat striated at their external face; posterior tibiae short, armed with 4 spines on each margin; metatarsi with denticulated margins, the denticles strong, nearly spiniform. *Ovipositor* short, straight, with narrow apical valves; the superior ones acute, longer than the inferior.

*Length* of body 7 mm.; pronot. 1.6 mm.; ant. fem. 1.5 mm.; tib. 1.4 mm.; post. fem. 4.5 mm.; ovipositor 4 mm.

*Range*.—INDIA: Madras: Nilgiris; Ootacamund, alt. 6,700–8,000 ft. (type, B.M.); Kallar, alt. 1,500 ft. (Phil. M.).

### 89. *Cophogryllus albipalpus* Saussure

1877. *Cophogryllus* (?) *albipalpus* Saussure, *Mém. Soc. Genève*, 25, 236, pl. 13 (XIII), fig. 3.

♀: *Size* small. *Colour* black, feebly depressed and feebly pubescent. *Head* convex above, vertex declivous; frontal rostrum wide, with nearly carinated edges. Face rather strongly projecting. Antennae brown. Maxillary palpi with two first joints brown, the apical three white. *Pronotum* depressed above, with posterior margin straight; disk spotted with fulvous on the shoulders; lateral lobes, with inferior margin ascending posteriorly, spotted with fulvous in the anterior angle. *Abdomen* black above, fulvous beneath. *Legs* testaceous, marbled with brown. Anterior tibiae slender, unperforated; anterior metatarsi very long. Posterior legs wanting (after Saussure). *Ovipositor* straight, slender, with apical valves ending in a spine.

*Length* of body 7.5 mm.; pronot. 1.6 mm.; width of pronot. 2.5 mm.; ovipositor 4 mm.

H. de Saussure includes this species in the genus *Cophogryllus* but with some doubt on account of the absence of the posterior legs; he insists very much on the shape of the face which is somewhat similar to the protuberance found in the family *Mogoplistidae*.

*Range*.—INDIA: without locality (type, Saussure's collection, G.M.).

## 90. *Cophogryllus bilineatus* n. sp.

(Fig. 73)

*Holotype*: Assam: Mishmi Hills, Delai Valley, alt. 7,300–8,000 ft., Cha Cha (M. Sterle, 21.XI.1936), ♀ (British Museum).

♀: *Colouration* black, shining, with two lateral orange-yellow bands, extending from the frontal rostrum to the first abdominal tergite. *Head* wide, a little flattened, presenting a few, sparse punctations; frontal rostrum very wide, short, with carinated edges; yellow bands extending from the occiput, along the eyes to the lateral ocelli. Face very broad, brown, shining; clypeo-frontal suture feebly convex; facial shield slightly concave, united to the rostrum by a straight line, presenting two deep impresses between the antennae; cheeks blackish-brown, finely wrinkled beneath the eye. Antennae and palpi black; maxillary palpi short, with 4th joint shorter than 3rd, feebly widening at top, 5th joint large, strongly widening towards the apex, almost securiform. *Pronotum* one and a half times as wide as long, feebly enlarged in front; anterior margin very slightly concave, narrowly lined with yellow, posterior margin strongly concave; disk almost flat, smooth, presenting, besides the lateral yellow bands, a very narrow and short line of the same colour near the middle of the posterior margin; this narrow yellow line is continued on the abdomen to its extremity; lateral lobes rather low, with inferior margin ascending posteriorly; black with a narrow yellow line along the inferior margin. *Abdomen* depressed and widening in the middle, presenting a weak recumbent pubescence.

Anterior and median *legs* black, with a fine pubescence. Anterior tibiae unperforated, armed with two inferior apical spurs; median tibiae with 4 apical spurs. Posterior femora thick, blackish, feebly striated with yellow on the external face; posterior tibiae brown, feebly yellowish on the sides,

armed with 4 spines on each superior margin; supero-internal apical spur a little longer than the median; metatarsi long, narrow, yellowish, armed with 6 denticles on each superior margin; internal apical spur very long, extending to the middle of the 3rd joint of the tarsus. *Ovipositor* rather long, straight, with apical valves a little enlarged, beak-like.

*Length* of body 11 mm.; pronot. 2·8 mm.; width of pronot. 4·5 mm.; post. fem. 8·5 mm.; ovipositor 9 mm.

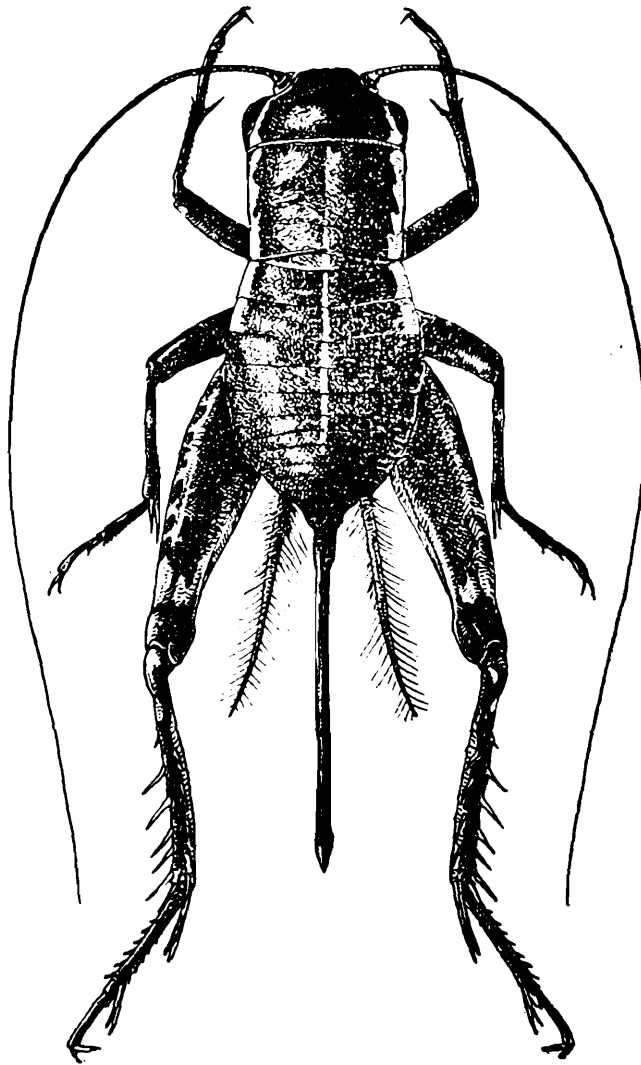


FIG. 73. *Cophogryllus bilineatus* n. sp., ♀ ( $\times 3\cdot5$ ).

A very remarkable species, differing from the other species of *Cophogryllus* not only by its characteristic colouration but still more by its depressed shape. When the male is known, it will probably be necessary to create a new genus for this insect.

Genus *ITAROPSIS* Chopard

1925. *Itaropsis* Chopard, *Ann. Mag. nat. Hist.*, (9) 75, 510.

*Type*.—*Gryllus tenellus* Walker.

*Range*.—India, W Africa?

This genus differs from *Gryllus* by the very small head, with very narrow frontal rostrum. In the male, the pronotum is narrowing in front and the elytra are wide. In the female, the elytra are a little shorter than the abdomen but the most important character is furnished by the ovipositor which is almost abortive, reduced to very small valves, no longer than the subgenital plate.

91. *Itaropsis tenellas* (Walker)

(Figs. 74, 75)

1869. *Gryllus tenellus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 37  
(the type is a female, not a male as indicated by Walker).

1871. *Gryllus parviceps* Walker, *Cat. Derm. Salt. Br. M.*, 5,  
Suppl., 8 (♀ with caudate wings).

1877. *Gryllodes parviceps* Saussure, *Mém. Soc. Genève*, 25, 227.

1877. *Gryllodes parvipennis* Saussure, *Mém. Soc. Genève*, 25, pl.  
13 (XII), figs. 2, 2a (error).

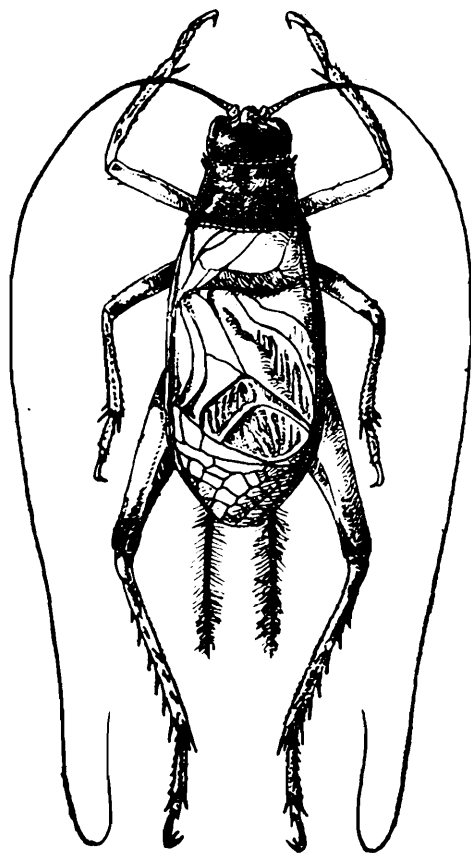
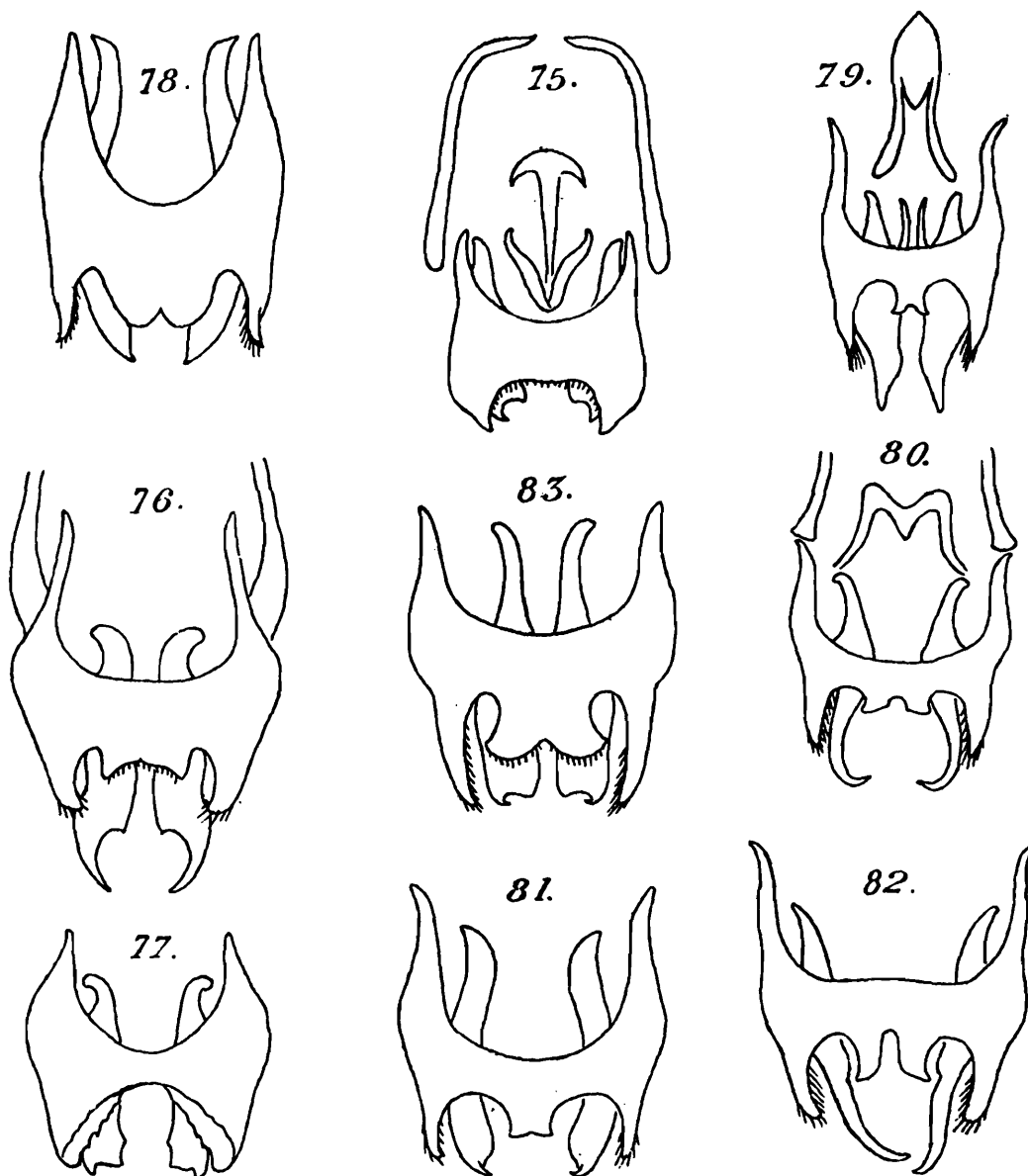


FIG. 74. *Itaropsis tenella* Walk., ♂ ( $\times 3.0$ ).

1925. *Anurogryllus tenellus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 508, fig. 8. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285.  
 1925. *Itaropsis parviceps* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 285, fig. 1 (♂ not ♀).  
 1936. *Itaropsis tenellus* Chopard, *Ceyl. J. Sc.*, (B) 20, 21. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 553.

♂: *Head* small, rounded, shining brown; frontal rostrum a little wider than the first antennal joint. Face yellowish.



FIGS. 75 to 83. Genitalia of: 75. *Itaropsis tenella*. 76. *Scapsipedus aspersus*. 77. *Sc. maindroni*. 78. *Sc. parvus*. 79. *Sc. grylloides*. 80. *Sc. latithorax*. 81. *Sc. albipalpis*. 82. *Sc. fallax*. 83. *Sc. saussurei*.

*Pronotum* rather strongly narrowing in front; disk brown, feebly pubescent; lateral lobes yellowish, with straight inferior

margin, feebly rounded angles. *Abdomen* light brown. *Legs* fulvous, finely pubescent. Anterior tibiae perforated with a large, oval, external tympanum; the internal face sometimes presents a small depression. Posterior femora rather long, moderately swollen at base; posterior tibiae much shorter than the femora, armed with 5 internal, 4 external spines; medio-internal apical spur longer than the superior one; metatarsi long, compressed, slightly bent, armed above with about ten denticles on each margin. *Elytra* extending to the abdominal extremity, wide, yellowish, translucent; mirror very broad, oval, divided by a curved vein about the middle; chords long, feebly curved, the first one united to the angle of the mirror by a long veinlet; two sinuous oblique veins; apical field rather short, presenting 4 rather regular veins and a reticulation formed of regular, long cells; lateral field nearly transparent, presenting 5 regularly distant veins; *Sc.* strongly bent towards the apex, bearing one branch. *Wings* usually very short, but macropterous specimens, with caudate wings, are very occasionally found. *Genitalia* with superior bridge wide, broadly notched at apex (fig. 75).

♀: *Pronotum* not all narrowing in front, so that the head looks bigger. *Elytra* extending to the middle of abdomen, rounded at apex; veins of the dorsal field rather irregular, *Cu.* divides a little before the extremity. *Wings* usually rudimentary. Macropterous specimens are known, in which the elytra reach the abdominal extremity and the wings are caudate; dorsal field of elytra dark brown, presenting nine almost longitudinal veins situated close together, the first five free, the others as branches of the *Cu.*; transverse veinlets rather distant and irregular; lateral field light coloured, with 4 parallel veins, besides the *Sc.*, which is plain. *Ovipositor* scarcely visible, forming only a very short furcate process, scarcely exceeding the subgenital plate.

*Length* of body 12.5–16 mm.; length with wings (macropterous form) 21.5 mm.; pronot. ♂ 2.5–3 mm., ♀ 2.8–3.2 mm.; post. fem. 9–12.5 mm.; post. tib. 5–8 mm.; elytra ♂ 10–11.5 mm., ♀ 4–5.5 mm., macropterous form 9 mm.

*Range*.—INDIA: Bombay (Maharashtra) (type of *parviceps*, B.M.); Salsette Island; Satara Dist., Helvak. West Bengal; Mace (P.M.). Goa: Marmagao Bay (P.M.). Mysore: Nalparai (P.M.). Kerala: Malabar coast; Mahé; Pattambi (P.M.); Cochin; Kavali (P.M.). Madras: Coimbatore; Annandam (type of *fletcheri*, B.M.). CEYLON (type of *tenellus*, B.M.): Kandy; Peradenyia; Ratnapura; Battaramulla; Bandarawela; Gammaduwa (Col. M.); numerous localities



(Sandrasagara). MALAYA: Bukit Kutu; The Gap; Fraser's Hill (B.M.).

### Genus SCAPSIPEDUS Saussure

1877. *Scapsipedus* Saussure, *Mém. Soc. Genève*, 25, 239.

*Type*.—*Acheta marginata* Afzelius and Brannius.

*Range*.—Tropical Africa and Asia, Madagascar, Japan.

This genus differs from *Gryllus* in the shape of the head, which is flattened, or even concave, in front in the male; in the female, it much more resembles that of a *Gryllus*, but the anterior ocellus is placed at the apex of the frontal rostrum and not on the forehead. The mandibles of the males are often very strong and lengthened.

#### Key to the species (males) of SCAPSIPEDUS

- |   |  |                                   |
|---|--|-----------------------------------|
| 1 | Head with a transverse yellow band between the ocelli. . . . .   | 2                                 |
|   | Head without light band between the ocelli. . . . .  | 6                                 |
| 2 | Mandibles very long, prominent; elytra of female usually extending to the apex of abdomen. . . . .   | 3                                 |
|   | Mandibles without any special conformation; elytra of female shorter than the abdomen. . . . .   | 4                                 |
| 3 | Larger (14–18 mm.); mirror lozenge-shaped; apical field of elytra with 4 veins and a regular reticulation. . . . .   | <i>aspersus</i> (Walk.), p. 111   |
|   | A little smaller (13–15 mm.); anterior and internal angles of the mirror almost rounded; apical field of elytra with 3 veins and a reticulation formed of a few large, rather irregular cells. . . . . | <i>maindroni</i> n. sp., p. 112   |
| 4 | Rather large (15.5–17 mm.). . . . .  | <i>grylloides</i> n. sp., p. 114  |
|   | Smaller (10–12.5 mm.). . . . .   | 5                                 |
| 5 | Head not broader than the pronotum; occiput light coloured; internal margin of the mirror close to the first chord; apical field of elytra with neat veins. . . . .                                    | <i>ceylonicus</i> Chop., p. 113   |
|   | Head broader than the pronotum; occiput dark with very neat yellow lines; internal margin of the mirror very remote from the first chord; apical field short, with confused venation. . . . .          | <i>parvus</i> Chop., p. 114       |
| 6 | Rather large species (20 mm.). . . . .   | 7                                 |
|   | Small species (10 mm.). . . . .  | 8                                 |
| 7 | Head adorned above with 5 yellow bands. . . . .  | <i>saussurei</i> , n. sp., p. 118 |
|   | Head without ornamentation above. . . . .  | <i>brunneri</i> nom. nov., p. 119 |

- 8 Head black, without any markings;  
palpi rufo-testaceous; mirror divided;  
3 oblique veins. . . . . *latithorax* Chop., p. 115  
Head brown, with 6 yellow lines on the  
occiput; palpi white; mirror non-  
divided; 2 oblique veins. . . . . 9
- 9 Genitalia of male presenting a median  
process of the superior bridge. . . . . *albipalpis* n. sp., p. 116  
Genitalia of male with superior bridge  
deeply notched . . . . . *fullax* n. sp., p. 117

## 92. *Scapsipedus aspersus* (Walker)

(Fig. 76)

1869. *Gryllus aspersus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 39 (♀).  
1871. *Gryllus signipes* Walker, *Cat. Derm. Salt. Br. M.*, 5, Suppl.  
8 (♀).  
1877. *Gryllodes berthellus* Saussure, *Mém. Soc. Genève*, 25, 205  
(♀).  
1877. *Scapsipedus mandibularis* Saussure, *Mém. Soc. Genève*,  
25, 246 (♂). Chopard, 1925, *Ann. Mag. nat. Hist.*, (9)  
15, 515. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130.  
Chopard, 1933, *Rev. Suisse Zool.*, 40, 165. Chopard,  
1935, *Ann. Mag. nat. Hist.*, (10) 16, 289.  
1925. *Gryllus berthellus* Chopard, *Ann. Mag. nat. Hist.*, (9)  
15, 510.  
1936. *Scapsipedus aspersus* Chopard, *Ceyl. J. Sc.*, (B) 20, 29.  
Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130. San-  
drasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 547.

*Size variable.* Head brown above, adorned with 6 yellow lines on the occiput and a yellow band between the ocelli. Face brown, shining, more or less yellowish on the sides and presenting beneath the anterior ocellus a yellow spot in the shape of a  $\lambda$ . *Pronotum* transverse; disk varied with brown and yellowish; lateral lobes for the most part yellowish, with inferior margin ascending posteriorly. *Legs* yellowish mottled with brown. Anterior tibiae perforated on the external face with a large, oval tympanum; the internal face imperforate or with a very small round tympanum. Posterior femora rather thick, striated with brown; posterior tibiae armed with 5 spines on each margin.

♂: Face strongly concave, mandibles very long, especially in the large individuals. *Elytra* extending to the apex of abdomen; mirror lozenge-shaped, divided by a straight vein behind the middle; 2 oblique veins; apical field rather short, rounded, with 4 veins and a reticulation of long, regular cells; lateral field almost transparent with a brown band along the humeral edge; *Sc.* bearing two branches, the other veins rather distant from one another. Wings short or caudate. *Genitalia* with superior bridge divided into three parts, the

median short, truncated, the two lateral a little prolonged, rounded; inferior parts hook-like (fig. 76).

♀: Face only a little flattened; mandibles of normal shape. *Elytra* extending nearly to the extremity of abdomen; veins of the dorsal field feebly oblique, rather regular; transverse veinlets many, forming long and narrow areolae. Length of the wings variable as in the male. *Ovipositor* with apical valves narrow, lanceolate, with smooth margins.

*Length* of body ♂ 13–18 mm., ♀ 16–19 mm.; pronot. ♂ 3–3.5 mm., ♀ 3–3.7 mm.; post. fem. ♂ 9–11 mm., ♀ 9.5–12 mm.; elytra ♂ 8.5–9 mm., ♀ 8–13 mm.; ovipositor 9–14 mm.

*Range*.—INDIA: Bombay (Maharashtra) (type of *mandibularis*, lost): Salsette Island. Andhra (B.M.). Mysore: Shimoga; Valparai (P.M.). West Bengal: Calcutta (P.M.). Assam: Shillong (B.M.). CEYLON: Battaramulla; Colombo; Peradeniya (Col. M.); Punakpitiya (P.M.); numerous localities (Sandrasagara). BURMA: Kathistan (P.M.). MALAYA: Pahang: Kuala Tahan. Selangor: Ampang; Kuala Lumpur; Carey Is. Singapore (Sel. M.). JAVA. BORNEO. ANNAM. HONG KONG (type, B.M.). CHINA.

### 93. *Scapsipedus maindroni* n. sp.

(Fig. 77)

*Holotype*: Madras: Nilgiris, Coonoor (M. Maindron, 1902), ♂; *allotype*: same locality, ♀ (Paris Museum).

♂: *Head* brown, shining, adorned with 6 yellow lines on the occiput and a narrow yellow band between the ocelli. Face brown, feebly concave, broad at base of the mandibles; these are very long, yellow. *Pronotum* strongly transverse, yellowish mottled with brown. *Legs* yellow, spotted with brown. Anterior tibiae with a large external tympanum and a very small internal. Posterior femora striated with brown; posterior tibiae armed with 5 spines on each superior margin. *Elytra* extending to the apex of abdomen; mirror almost rectangular, oblique, rounded posteriorly, divided in the middle by an almost straight vein; diagonal vein feebly sinuous; 2 oblique veins; apical field presenting 3 veins and a few rather irregular, large cells; lateral field transparent with a brown band in its superior part; veins rather distant, *Sc.* bearing two branches. Wings short. *Genitalia* wide and widely notched with inferior pieces very short (fig. 77).

♀: *Elytra* a little shorter than the abdomen, brown with a yellow humeral band; veins of the dorsal field almost straight, close to one another; reticulation formed of rather

regular, long cells. *Ovipositor* with apical valves narrow, lanceolate.

*Length* of body ♂ 13 mm., ♀ 15 mm.; pronot. ♂ 2.5 mm., ♀ 3.1 mm.; post. fem. ♂ 9 mm., ♀ 10 mm.; elytra ♂ 8.5 mm., ♀ 8 mm.; ovipositor 8.5 mm.

Close to the preceding species, but smaller; anterior and internal angles of the mirror of the male elytra more rounded; diagonal vein longer; apical field shorter, with 3 veins only and a less regular reticulation; veins of the lateral field more distant; genitalia different; elytra of the female shorter, with a closer and longer reticulation.

#### 94. *Scapsipedus ceylonicus* Chopard

1928. *Scapsipedus ceylonicus* Chopard, *Rec. Ind. Mus.*, 30, 18.  
Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 30. Sandrasagara,  
1954, *J. Bombay nat. Hist. Soc.*, 52, 547.

*Size* small. *Colour* light brown. *Head* wide, adorned with 6 faintly visible light bands on the occiput, and a transverse narrow yellow band between the antennae. Face yellowish; facial shield a little darker, with a yellow median band extending to the anterior ocellus. In the male, the face is rather strongly flattened, the forehead is, however, slightly projecting and the mandibles present a normal shape. *Pronotum* slightly widening in front in both sexes; anterior margin a little concave, posterior margin straight; disk light rufous-brown, dull; lateral lobes with superior part dark, inferior part very light, the distinction between the two colours very conspicuous. *Legs* testaceous. Posterior tibiae armed with 5 internal and 6 external spines.

♂: *Elytra* extending to the apex of abdomen; mirror rather large, subquadrangular, divided much behind the middle; chords united to the mirror by a small vein coming near the angle; diagonal vein a little sinuate; 2 oblique veins; lateral field a little darker, presenting 6 very close and regular veins, and the *Sc.* having two branches. Wings short. *Genitalia* presenting no difference from *aspersus*.

♀: *Elytra* extending to the middle of abdomen only; dorsal field presenting 4 free veins and two branches of the *Cu.*; transverse veinlets numerous and irregular; lateral field with 6 regular veins, *Sc.* furcate near the apex. No wings. *Ovipositor* of the type broken.

*Length* of body ♂ 12.5 mm., ♀ 11.5 mm.; pronot. ♂ ♀ 2.5 mm.; elytra ♂ 7 mm., ♀ 4 mm.

This rather small species looks very much like the small

individuals of *Sc. aspersus*, but the head is scarcely of the *Scapsipedus* type, the mandibles being quite normal.

*Range*.—CEYLON: Peradeniya (type, I.M.); Battaramulla; Colombo; Balangoda (Col. M.); Labugama (I.M.).

## 95. *Scapsipedus parvus* Chopard

(Fig. 78)

1928. *Scapsipedus parvus* Chopard, *Rec. Ind. Mus.*, 30, 18.  
Chopard, 1933, *Rev. Suisse Zool.*, 40, 165.

Very close to *aspersus*, but smaller. *Head* presenting 6 narrow, yellow stripes on the occiput, and a yellow band uniting the lateral ocelli. Face rather strongly flattened in the male, but the mandibles much less lengthened than in *aspersus*, being nearly normal in shape. ♂: *Elytra* extending to the apex of abdomen, with mirror wider than long, rounded posteriorly, divided about the middle by a curved vein; apical field very short; lateral field with regular parallel veins. *Genitalia* of the same type as *aspersus*, but the median part of the superior bridge rounded and notched at apex (fig. 78).

♀: *Elytra* scarcely extending to the middle of abdomen, with veins of the dorsal field longitudinal; transverse veinlets numerous and forming a very irregular, lengthened reticulation.

*Length* of body 12.5 mm.; post. fem. 10 mm.; elytra ♂ 8 mm., ♀ 4.5 mm.; ovipositor 11.5 mm.

Close to the preceding but the head a little more differentiated; genitalia of the male quite different.

*Range*.—INDIA: West Bengal: Darjeeling; Sitong Ridge, alt. 4,700 ft. (type, I.M.).

## 96. *Scapsipedus grylloides* n. sp.

(Fig. 79)

*Holotype*: Assam: Ledo Road, 19 m. from Ledo (J. W. H. Rehn, 23.IX.1944), ♂: *allotype*: same locality, ♀ (Academy of Natural Sciences, Philadelphia).

♂: *Size* and general aspect of a large *aspersus*. *Head* big, rufous-brown, with 6 short, yellow lines on the occiput and a very narrow band of the same colour between the ocelli; face brown, shining, a little flattened. Mandibles rather long but normal in shape. Cheeks somewhat hollowed

beneath the eyes, ridged. Palpi yellow. *Pronotum* transverse, a little widening in front, with anterior margin feebly concave; disk feebly convex, brownish, a little variegated with yellowish, pubescent; lateral lobes brown with an irregular yellow band in its inferior part. *Abdomen* brown above, yellowish beneath. *Legs* yellowish, feebly spotted with brown, pubescent. *Elytra* extending to the apex of abdomen; mirror' quadrangular, oblique, acute in front, divided by an undulating vein; 2 oblique veins; apical field rather short, rounded, presenting 4 veins and a very close, regular reticulation; lateral field translucent, darkened in the superior part; 5 somewhat distant veins; *Sc.* with 2 branches. Wings short. *Genitalia* of the same general shape as *albipalpis*; superior bridge trilobate, the median lobe shorter than the lateral ones, narrow, with apical margin truncated and feebly notched in the middle; inferior pieces very broad (fig. 79).

♀ (allotype): Similar to the male; *elytra* extending a little farther than the middle of abdomen, almost truncated at apex; dorsal field brown with a humeral, yellow band; reticulation very close, formed of long cells, the principal veins being somewhat confused, 3 free veins and the *Cup.* being only neatly visible. *Ovipositor* feebly acute at apex.

*Length* of body 16–17 mm.; pronot. 3.5 mm.; post. fem. 12 mm.; *elytra* ♂ 9 mm., ♀ 7 mm.; *ovipositor* 12–13 mm.

This species differs from *Sc. aspersus* by the mandibles being scarcely longer than is normal in the genus *Gryllus*, the yellow interocellar band being narrower, and the genitalia of the male with much narrower median lobe.

## 97. *Scapsipedus latithorax* Chopard

(Fig. 80)

1928. *Scapsipedus latithorax* Chopard, *Rec. Ind. Mus.*, 30, 17, fig. 24.

♂: *Size* small. *Colour* blackish-brown. *Head* large; occiput and vertex convex, black, without any marking. Face distinctly depressed; mouth parts somewhat lengthened, as in small individuals of *Sc. aspersus*. Palpi rufo-testaceous; 4th joint of maxillary palpi scarcely shorter than 3rd. *Pronotum* distinctly transverse, with anterior and posterior margins straight; disk feebly convex, blackish, pubescent; lateral lobes slightly ascending posteriorly, tinged with yellow, their extreme inferior margin black. *Abdomen* brownish. *Legs* rufo-testaceous, a little mottled with brown. Anterior tibiae perforated at their external face, the internal face being only

depressed. Posterior femora thick, weakly striated with brown on their external face; posterior tibiae armed with 5 spines on each margin. *Elytra* extending to the apex of abdomen; mirror lozenge-shaped, divided behind the middle by a curved vein; 3 oblique veins; diagonal vein very close to the first chord; apical field short, widely reticulated; lateral field darkened along the humeral edge, presenting 5 oblique, rather regular veins; *Sc.* bearing two branches. 'Wings caudate. *Genitalia* with superior bridge feebly produced in the middle and roundly notched (fig. 80).

*Length* of body 10 mm.; length with wings 18.5 mm.; pronot. 2 mm.; post. fem. 7.5 mm.; elytra 7 mm.

This small species differs from the preceding by its very wide pronotum, in the absence of markings on the head and by the shape of the genitalia.

*Range*.—INDIA: Bihar: Pusa (type, B.M.).

### 98. *Scapsipedus albipalpis* n. sp.

(Fig. 81)

*Holotype*: Orissa: Barkul, ♂ (Paris Museum).

*Size* small. *Head* wide; brown above, shining, with 6 yellow lines on the occiput. *Face* brown, with a small yellow line beneath the anterior ocellus; seen from the side, the face looks feebly concave; mandibles rather neatly lengthened; cheeks presenting beneath the eye a strong sinuated protuberance with a small shagreened depression. *Antennae* slender; rufous. *Palpi* white; 4th joint of the maxillary palpi shorter than 3rd. *Pronotum* strongly transverse, rufous-brown, a little mottled with yellowish; lateral lobes feebly lightened in the inferior part. *Abdomen* yellowish beneath. *Legs* yellowish, without spots. Posterior femora short and wide, very feebly striated with brown on their external face; posterior tibiae with 5 spines on each superior margin. *Elytra* extending to the abdominal extremity; mirror much broader than long, with very acute internal angle, non-divided; 2 oblique veins; diagonal vein and chords long, the diagonal almost touching the first chord; apical field short, presenting two veins only and a few large, irregular cells; lateral field brown, with 4 rather distant veins; *Sc.* bearing one branch. No wings. *Genitalia* with superior bridge presenting a narrow median lobe, feebly notched; inferior lobes relatively short and wide (fig. 81).

*Length* of body 10 mm.; pronot. 2 mm.; post. fem. 7.5 mm.; elytra 5.5 mm.

This small species is very close to the preceding from which it differs by the bigger head, the elytral mirror much wider and the shape of the genitalia.

*Range*.—CEYLON (V.M.).

### 99. *Scapsipedus fallax* n. sp.

(Fig. 82)

*Holotype*: Mysore: Nedungadu, ♂; *allotype*: same locality, ♀ (Paris Museum).

♂: *Size* small. *Colour* brownish with lighter legs. *Head* relatively big, brown, shining above with 6 short yellowish lines on the occiput. *Face* long, brown, shining from the top of the forehead to the clypeus; mouth parts yellow, the mandibles long and strong. Palpi yellowish; 5th joint of maxillary palpi much longer than 4th, feebly widening at apex, which is obliquely truncated. *Pronotum* almost twice as wide as long, feebly enlarged in front; disk feebly convex, rather dark brown, more or less mottled with yellowish; lateral lobes with superior part of the same colour as the disk, inferior part yellow. *Abdomen* light brown above, yellow beneath, pubescent. *Legs* yellowish; anterior tibiae with a large external tympanum; posterior femora short and stout; posterior tibiae armed with 4 or 5 external spines, 4 internal ones. *Elytra* extending to the apex of 5th abdominal tergite, light brown, shining; mirror strongly transverse, rounded backwards, non-divided, with right anterior and internal angles, very acute external one; 2 oblique veins; diagonal vein very close to the first chord; apical field reduced to two rows of very narrow cells; lateral field brown in its superior part, almost transparent in the inferior half, with 4 rather regularly spaced veins. Wings very short. *Genitalia* with median part deeply notched (fig. 82).

♀: Similar to the male. *Head* smaller, with shorter mandibles; vertex presenting a faint transverse yellow line between the eyes. *Abdomen* brown, mottled with yellowish. *Elytra* extending to the apex of second abdominal tergite, with rounded internal margin and apex; disk dark brown, shining, with a small yellowish humeral band; 3 feebly oblique veins, the cubital one furcate a little after the middle; transverse veinlets rather scarce; lateral field almost transparent with four regularly spaced veins. No wings. *Ovipositor* very short, straight with apical valves feebly flattened, acute.

*Length* of body 11–11.5 mm.; post. fem. 8 mm.; elytra ♂ 5–5.2 mm., ♀ 2.5 mm.; ovipositor 6.5 mm.



Very close to the preceding of which it can be distinguished by the genitalia of the male and the abnormally short ovipositor of the female.

# 100. *Scapsipedus saussurei* n. sp.

(Figs. 83, 84)

*Holotype*: Travancore (Kerala): Cochin State, Kawalai, ♂ (Paris Museum).

♂: Rather large species, shining rufous-brown. *Head* big, very broad, presenting 4 weak yellow lines on the occiput; frontal rostrum wide with almost carinated margins. Face brown, strongly concave, very broad above the base of mandibles; these are very long, curved. *Pronotum* with parallel margins, not widening in front; anterior and posterior margins straight; disk almost flat, light brown; lateral lobes a little lighter, with inferior margin slightly ascending posteriorly. *Legs* of the same colour as the body, feebly mottled with brown. Posterior femora thick; posterior tibiae armed with 6 long spines on each margin; apical spurs long and slender, metatarsi long, armed with 6-7 denticles. *Elytra* extending

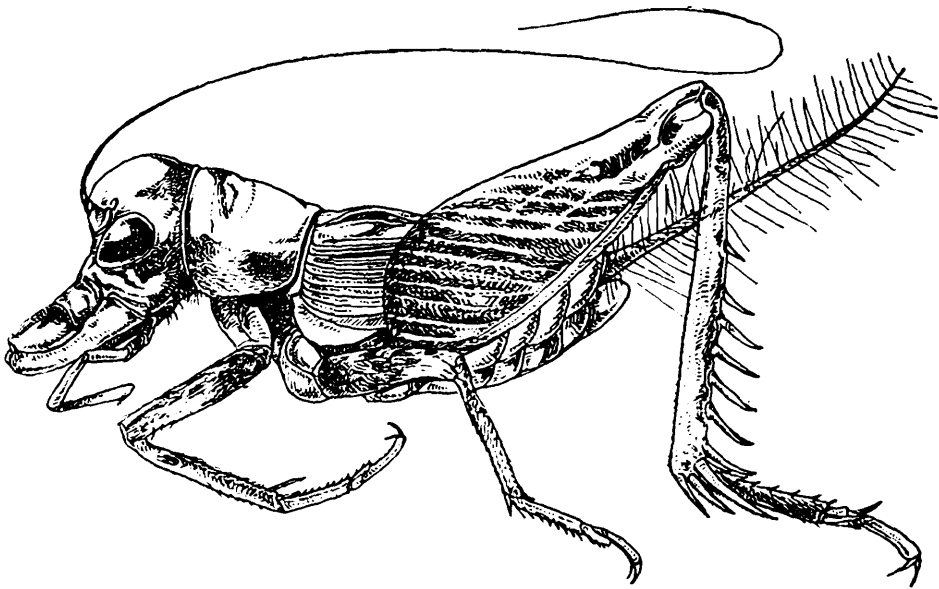


FIG. 84. *Scapsipedus saussurei* Chop., ♂ (×2.6).

to the apex of abdomen; mirror wider than long, a little rounded anteriorly and posteriorly, divided before the middle by a curved vein; apical field very short, presenting 2 veins and a few large cells; lateral field nearly transparent, with 7 close veins; *Sc.* bearing one branch. Wings short. *Genitalia*

of the *aspersus* type, with the median lobe of the superior bridge wide, feebly notched, inferior lobes with a very short hook (fig. 83).

*Length* of body 20 mm.; pronot. 5 mm.; post. fem. 15 mm.; elytra 11 mm.

A species well characterized by the very broad head and the pronotum not at all enlarged, by the enormous mandibles and by the shape of the genitalia. It presents the *Scapsipedus* characters in a high degree, even more than the bigger examples of *Sc. aspersus* (Walk.).

# 101. **Scapsipedus brunneri** nom. nov.

(Fig. 85)

1893. *Grylloides mandibularis* Brunner (*non* Saussure), *Ann. Mus. Genova*, 33, 200, pl. 6, fig. 69.

♂: Very close to the preceding. *Head* without yellowish bands. Posterior metatarsi a little thicker, compressed. *Elytral* venation differing only by the oblique veins which are shorter and more distant from one another; apical field with narrower and somewhat irregular areolae. *Genitalia* differing in the much wider median lobe of the superior bridge (fig. 85).

*Range*.—BURMA: Bhamo (type, G.M.); Kalaw; Southern Shan States (Phil. M.).

## Genus SCAPSIPEDOIDES Chopard

1936. *Scapsipedoides* Chopard, *Ceyl. J. Sc.*, (B) 20, 32.

*Type*.—*Scapsipedoides macrocephalus* Chop.

*Range*.—Ceylon.

Close to *Scapsipedus*, showing, in the male sex, the same shape of the head, the long mandibles, but completely apterous, with non-perforated anterior tibiae.

This genus presents the same relations with *Scapsipedus* as *Cophogryllus* does with *Gryllus*.

## *Key to the species of SCAPSIPEDOIDES*

Large species (20 mm.); face very strongly excavated; mandibles very long and strong.

*macrocephalus* Chop.,  
p. 120

Smaller (14 mm.); face merely flattened; mandibles long but not so developed.

*apterus* Chop., p. 120

### 102. *Scapsipedoides macrocephalus* Chopard

1936. *Scapsipedoides macrocephalus* Chopard, *Ceyl. J. Sc.*, (B) 20, 32, fig. 4. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 548.

♂: A rather large species. *Colour* dark chestnut-brown. *Head* very big; occiput and vertex convex, without any ornament. Face very strongly excavated; mandibles long and strong; cheeks strongly ridged and presenting beneath the eye a deep depression which is prolonged backwards. Palpi yellowish, rather long; 5th joint of the maxillary palpi much longer than the 4th. Antennae brown. Eyes little projecting, feebly lengthened; ocelli big, yellow, disposed in a triangle. *Pronotum* transverse, strongly widening in front; anterior and posterior margins feebly convex; narrowly lined with yellow; disk chestnut-brown covered with a whitish pubescence, the usual piriform impressions rufous; lateral lobes widely yellowish in front, with inferior margin slightly ascending posteriorly. *Abdomen* cylindrical, brown, a little pubescent. *Legs* a little lighter than the body, rather long. Anterior tibiae unperforated. Posterior femora thick, slightly striated at their external face; posterior tibiae with 5 spines on each margin; supero-internal apical spur a little shorter than the median; metatarsi compressed, armed with 7 to 8 denticles on each margin. *Genitalia* presenting a titillator lengthily furcate at apex.

♀: Very similar to the male, but the head feebly flattened in front, the mandibles not especially long. *Ovipositor* long and very slender, with acute, very narrow apical valves.

*Length* of body 20 mm.; pronot. 4.2 mm.; post. fem. 14.5 mm.; post. tib. 10 mm.; ovipositor 17 mm.

*Range*.—INDIA: Kerala. Madras: Coimbatore (Phil. M.). CEYLON: Belihuloya (type, Col. M.); Trincomalee (Col. M.); without locality, ♀ (V.M.).

### 103. *Scapsipedoides apterus* Chopard

1936. *Scapsipedoides apterus* Chopard, *Ceyl. J. Sc.*, (B) 20, 32. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 548.

♂: Much smaller than the preceding. *Colour* very dark brown. *Head* moderately big; occiput and vertex nearly black-brown, without any marking. Face rufous-yellow, merely flattened, not excavated; mandibles long, but not so developed as in the preceding species; cheeks shagreened beneath the eyes, but not depressed. *Pronotum* transverse, feebly widening in front; anterior margin straight, posterior

one slightly convex; disk convex, brown with a whitish pubescence, the usual impressions tinged with rufous; lateral lobes widely yellowish anteriorly. *Abdomen* nearly cylindrical, dark brown, pubescent. *Legs* light rufous, pubescent. Anterior tibiae unperforated. Posterior tibiae armed with 5 spines on each margin; supero-internal apical spur a little shorter than the median. *Genitalia* bifid as in the preceding species.

*Length* of body 14 mm.; pronot. 4 mm.; post. fem. 11 mm.; post. tib. 8.5 mm.

This species differs from the preceding in the shape of the head, but it is so closely related to it in its general characters that it might almost be considered as a variety *minor* of *Sc. macrocephalus*. The insufficient description of the genitalia gives an indication in that sense but it would be necessary to study the types anew.

*Range*.—CEYLON: Madola near Opanaka (type, Col. M.); Bandarawela (Col. M.).

## Genus LOXOBLEMMUS Saussure

1877. *Loxoblemmus* Saussure, *Mém. Soc. Genève*, 25, 249.

*Type*.—*Loxoblemmus equestris* Saussure.

*Range*.—Southern Asia, Philippines, Japan, Queensland, Madagascar, Tropical Africa.

General shape rather slender. *Head* usually rather small; vertex short, almost horizontal, forming between the antennae a truncated or more or less angular rostrum. Face of the males flattened, strongly oblique; in the females, it is only weakly flattened; anterior ocellus situated on the inferior face of the frontal rostrum.

Like *Scapsipedus*, this genus is close to the true *Gryllus*, but it is more differentiated; the head of the male is always strongly flattened in front and the females are perfectly distinct from *Gryllus*, which is not always the case with *Scapsipedus*.

### *Key to the species of LOXOBLEMMUS (males)*

- |   |  |     |    |
|---|--|-----|----|
| 1 | First joint of the antennae without process (sometimes a tooth on the external angle). | ... | 2  |
|   | First joint of the antennae with external angle produced in a long process.            | ... | 12 |
| 2 | Face presenting a deep hollow beneath the apical margin of the frontal rostrum.        |     |    |

*cavifrons* Chop., p. 132

- Face without hollow in the superior part. 3
- 3 Frontal rostrum very broad, almost four times as broad as the first antennal joint. 4
- Frontal rostrum not so wide. 7
- 4 Rather large species (15 mm.); head very broad... *macrocephalus* n. sp., p. 130
- Smaller species (10 mm.); head of normal width. 5
- 5 Frontal rostrum truncated at apex. *truncatus* Brun., p. 129
- Frontal rostrum feebly angular at apex. 6
- 6 Face wholly flattened in its superior part, pentagonal in shape. *latifrons* Chop., p. 131
- Face wide, excavated. *fletcheri* Chop., p. 133
- 7 Head shining black above. ... *nigriceps* Chop., p. 129
- Head brown with yellow lines above. 8
- 8 Size small (11-12 mm.); first joint of the antennae with a short dentiform projection. *equestris* Sauss., p. 122
- Size larger (14-18 mm.); first joint of antennae plain. 9
- 9 Frontal rostrum convex, feebly projecting. 10
- Frontal rostrum strongly projecting. 11
- 10 Labial palpi very long. *longipalpis* Chop., p. 124
- Labial palpi of normal length. *detectus* (Serv.), p. 123
- 11 Frontal rostrum rounded at apex. *haani* Sauss., p. 124
- Frontal rostrum angular, very long. *longifrons* n. sp., p. 126
- 12 Antennal process very long, curved. *hamulifer* n. sp., p. 128
- Antennal process shorter, straight. 13
- 13 Antennal process not longer than the second joint. *taicoun* Sauss., p. 126
- Antennal process longer than the second joint. 14
- 14 Face trilobate. *jacobsoni* Chop., p. 127
- Face with inferior angles feebly produced. *intermedius* Chop., p. 127

#### 104. *Loxoblemmus equestris* Saussure

1877. *Loxoblemmus equestris* Saussure, *Mém. Soc. Genève*, 25, 252, pl. 13 (XVI), figs. 4, 4a-c. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 515. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 131. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 548.

♂: Rather small species. Head brown above with 6 yellow lines on the occiput and a transverse band of the same colour at top of the frontal rostrum; this is wide, feebly arched. Face wide, flattened, strongly oblique. Antennae with first joint presenting a dentiform projection on the external angle. Pronotum transverse, brown varied with

yellowish, pubescent; lateral lobes brown. *Legs* yellowish, mottled with brown. Anterior tibiae perforated with a large, external tympanum and a small one on the internal face. Posterior tibiae armed with 5 spines on each margin. *Elytra* extending to the apex of abdomen; mirror lozenge-shaped, rounded posteriorly, longer than broad, undivided, with acute anterior angle; 2 oblique veins; apical field rather long, presenting 5 veins and a regular, long reticulation; lateral field with rather distant veins. Wings usually caudate.

♀: *Head* convex above; frontal rostrum very short, with scarcely arcuate anterior margin. Face slightly flattened. *Elytra* presenting on the dorsal field a reticulation formed of rather irregular, lengthened areolae. *Ovipositor* straight, with apical valves narrow, acute.

*Length* of body 11–13 mm.; length with wings 20–21 mm.; pronot. 2–2.2 mm.; post. fem. 6–6.8 mm.; elytra 7–7.5 mm.; ovipositor 6.5 mm.

*Range*.—INDIA: Assam: Doom Dooma (U.S.N.M.); Ledo (Phil. M.). Bihar: Pusa (B.M.); Pachrukhi (Phil. M.). Mysore: Valparai (P.M.). Madras: Nilgiri Hills (Phil. M.). CEYLON: Peradeniya (Col. M.); Battaramulla; Hanwella; Mousakande; Gammaduwa; Rakwana; Bintenne (Sandra-sagara). BURMA: Toungoo; Shingbuiyang; Myitkyina (Phil. M.). MALAYA: Selangor: Bukit Cherakah; Carey Island. Perak: Batang Padang. Pahang: Kuala Tahan; Lubok (Sel. M.); Klano Gate (B.M.). JAVA. CELEBES (type, Brunner's coll., V.M.).

### 105. *Loxoblemmus detectus* (Serville)

1839. *Platyblemmus detectus* Serville, *Ins. Orth.*, 356.

1877. *Loxoblemmus detectus* Saussure, *Mém. Soc. Genève*, 25, 255, pl. 13 (XVI), figs. 2, 2a. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 130.

♂: *Head* brown; occiput adorned with 4 yellow lines; frontal rostrum arcuate, with a transverse yellow band. Face flattened, even slightly concave. First joint of the antennae without any denticulation. *Pronotum* testaceous, mottled with brown; lateral lobes brown, with the anterior angle testaceous. *Elytra* extending to the apex of abdomen, testaceous with a brown humeral band; mirror in the shape of a long lozenge, divided behind the middle; internal angle obtuse, anterior angle truncated; 2 oblique veins; apical field long, presenting 3 veins and a regular reticulation; lateral field with spaced veins; *Sc.* bearing two branches. Wings short or caudate.

♀: Face feebly flattened, a little convex. *Elytra* extending to the apex of abdomen, with veins oblique, converging towards the extremity; transverse veinlets forming a very wide, rather regular reticulation. *Ovipositor* straight, with very narrow, acute apical valves.

*Length* of body 15–17 mm.; pronot. 3–3.5 mm.; post. fem. 10.5–11.5 mm.; elytra 10–11 mm.; ovipositor 8–8.5 mm.

This species differs from the preceding by its larger size and the plain first antennal joint. A species intermediate between both *equestris* and *detectus*; *Loxoblemmus arietulus* Sauss. will probably be found in Malaya.

*Range*.—INDIA: Bihar (type in P.M.): Siripur; Saran (P.M.). CEYLON: Puwakpitiva (P.M.). MALAYA: Singapore (P.M.). Kuala Lumpur. Pahang: Kuala Tahan. Johore: Kota Tinggi (Sel. M.).

### 106. *Loxoblemmus longipalpis* Chopard

1928. *Loxoblemmus longipalpis* Chopard, *Spol. Zeyl.*, **14**, 200.  
Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 31. Sandrasagara,  
1954, *J. Bombay nat. Hist. Soc.*, **52**, 548.

♂: Very similar to the preceding, but more robust. Palpi yellowish, a little darkened at apex; maxillary palpi rather long, especially the 3rd and 5th joints, 4th joint a little shorter than the 3rd; labial palpi very much developed, with 2nd joint longer than the 4th joint of maxillary palpi; the 3rd also a little longer than the 5th maxillary. Antennae slender, with first joint plain. *Elytra* extending to the apex of abdomen; mirror rhomboidal, undivided; 2 oblique veins; apical area rather short. Wings caudate.

*Length* of body 18 mm.; pronot. 3.5 mm.; post. fem. 11.5 mm.; post. tib. 9 mm.; elytra 10.5 mm.

Very close to *L. detectus*; it can be distinguished by its more robust shape, the frontal rostrum less projecting and above all by the abnormal length of the labial palpi.

*Range*.—CEYLON: Colombo (type, Col. M.); numerous localities (Sandrasagara).

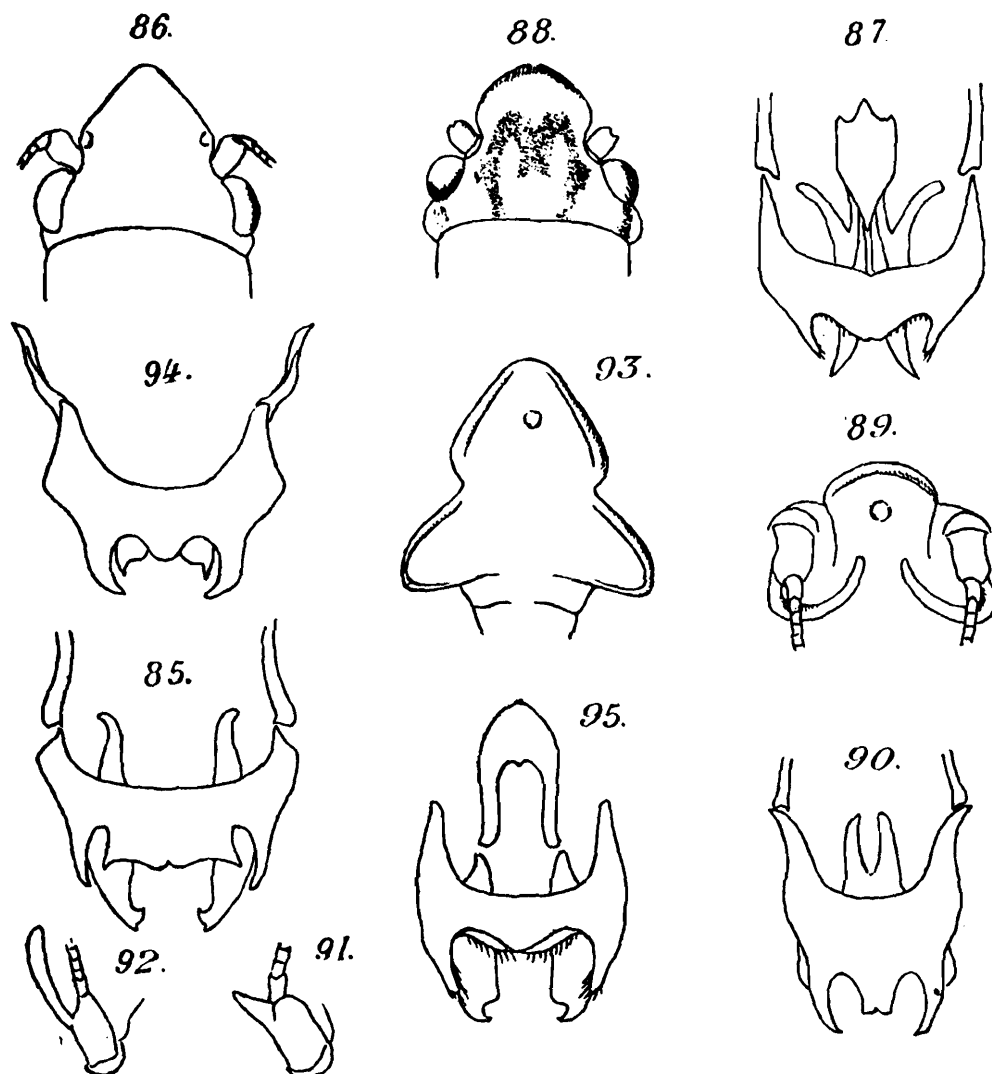
### 107 *Loxoblemmus haani* Saussure

(Fig. 88)

1877. *Loxoblemmus haani* Saussure, *Mém. Soc. Genève*, **25**, 257,  
pl. 13 (XVI), figs. 5, 5e.

This species is also very close to *detectus* from which it differs in the shape of the frontal process; this is rather

strongly projecting, with apical margin forming a curve nearly in the shape of a semicircle (fig. 88); beneath, the process goes beyond the ocellus by nearly 2 millimetres and its edges form a prominent swelling; the face is flat, feebly trilobate. Elytral mirror rhomboidal, with anterior angle obtuse; 2 oblique veins.



FIGS. 85 to 95. 85. genitalia of *Scapsipedus brunneri*. 86. *Loxoblemmus longifrons*, head from above. 87. *id.*, genitalia. 88. head of *L. haani*. 89. *L. hamulifer*, superior part of the face and base of antennae. 90. *id.*, genitalia. 91. *L. taicoun*, first antennal joint. 92. *id.*, of *L. jacobsoni*. 93. anterior part of the face of the same. 94. genitalia of *L. macrocephalus*. 95. *Coiblemmus compactus*, genitalia.

Length of body 18 mm.; pronot. 3.2 mm.; post. fem. 10.5 mm.; elytra 10.5 mm.

Range.—INDIA: West Bengal: Darjeeling (P.M.). JAVA (type in Brunner's collection, V.M.).



108. **Loxoblemmus longifrons** n. sp.

(Figs. 86, 87)

*Holotype*: Siam: Upper Pran R. (W R. S. Ladell, 12.1V 1926), ♂ (British Museum).

*Size* rather large. *Colour* rufous-brown, finely pubescent. Occiput with five short and very feeble yellowish bands. *Head*: Frontal rostrum very long, angular, feebly rounded at apex (fig. 86). Face shining brown; inferior part of the frontal process feebly concave and presenting fine transverse ridges; sides of this process rounded. Anterior ocellus in the middle of the process. Antennae brown with first joint plain. Palpi long; 4th joint of maxillary palpi shorter than 3rd; 5th very long, rather strongly widening towards the apex, with convex inferior margin. *Pronotum* enlarged anteriorly, with anterior margin very feebly concave, posterior margin straight; disk almost flat, rufous-brown; lateral lobes concolorous, with inferior margin almost straight. *Abdomen* brown, pubescent. *Legs* rufous-brown, pubescent. Anterior tibiae perforated with a large, oval, external tympanum. Posterior femora thick, unicolorous; posterior tibiae armed with 5 spines on each margin; metatarsi long, armed with 7-8 denticles on each superior margin. *Elytra* extending to the middle of the 6th abdominal tergite, rounded at apex; dorsal field light rufous-brown, shining; mirror large, almost apical, subtriangular, partly divided into cells along its posterior margin; diagonal vein rather short; first chord united to the mirror by a long veinlet; 2 oblique veins; apical field very short, with three rows of large cells; lateral field a little darker than the dorsal field, presenting 5 very regular veins; *Sc.* plain. Wings very short. *Genitalia* with superior bridge trilobate, the median lobe very short, rounded (fig. 87).

*Length* of body 20 mm.; pronot. 4 mm.; width of pronot. in front 5.4 mm.; post. fem. 14 mm.; elytra 9.5 mm.

109. **Loxoblemmus taicoun** Saussure

(Fig. 91)

1877. *Loxoblemmus taicoun* Saussure, *Mém. Soc. Genève*, 25, 256.

Similar to *L. equestris* but larger; frontal rostrum less convex but more strongly projecting; face strongly widening beneath the eyes and feebly trilobate; external angle of the first antennal joint forming a tooth as long as the second joint (fig. 91).

*Length* of body 14–16 mm.; pronot. 2·3–3 mm.; post. fem. 9–9·5 mm.; elytra 9–11 mm.

The male of this species is well characterized by the shape of the frontal rostrum; the female has been briefly described by Saussure but it is impossible to differentiate it from the neighbouring species.

*Range*.—INDIA: United Provinces (Uttar Pradesh): Bhim Tal; Kumaon, alt. 4,500 ft. (P.M.). JAPAN (type, V.M.).

### 110. *Loxoblemmus jacobsoni* Chopard

(Figs. 92, 93)

1927. *Loxoblemmus jacobsoni* Chopard, *Ann. Soc. ent. Fr.*, 96, 157, fig. 14. Chopard 1931, *Bull. Raffles Mus.*, No. 6, 131.

♂: *Size* and habitus similar to *L. equestris*; frontal rostrum wide, regularly arched, a little longer than in *equestris*; face flattened, forming above the ocellus a convex shield; inferior part prolonged in two projecting angles which are a little rounded (fig. 93). First joint of the antennae bearing a process a little longer than the joint itself (fig. 92). Elytral mirror divided in its posterior part by a curved vein, forming 3 or 4 little cells.

♀: Similar to that of *equestris*.

*Length* of body 12 mm.; post. fem. 8 mm.; elytra 6·5 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur; Bukit Kutu; The Gap; Carey Island. Perak: Sungai Pengah (Sel. M.). Pahang: Lubok Tamang (P.M.). Simalur (type, P.M.). SUMATRA. JAVA.

### 111. *Loxoblemmus intermedius* Chopard

1929. *Loxoblemmus intermedius* Chopard, *Bull. Raffles Mus.*, No. 2, 103. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 131.

*Size* and general aspect as in *L. equestris* and *L. jacobsoni*; it being quite impossible to differentiate the females of these species. Antennae of the male with first joint bearing a process nearly as long as in *jacobsoni*; facial shield intermediate between the two species, forehead simply arcuate as in *equestris* but the inferior angles of the shield somewhat projecting, although less than in *jacobsoni*. Elytra with mirror divided much behind the middle by an angulate vein; 4 oblique veins, of which the fourth is very small.

*Length* of body ♂ 11 mm., ♀ 12 mm.; post. fem. 7–8·5 mm.; elytra ♂ 6 mm., ♀ 4–6 mm.; ovipositor 8·5 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur; Gombak Valley. Pahang: Sungai Tahan (Sel. M.). MENTAWAI ISLANDS (type, B.M.). SUMATRA. BORNEO.

## 112. *Loxoblemmus hamulifer* n. sp.

(Figs. 89, 90)

*Holotype*: West Pakistan: Lyallpur (Abdullah, 1.IX.1953), ♂ (Comm. Inst. Ent.); *paratype*: same locality, ♂ (Paris Museum).

A rather small species. *Head* blackish-brown above, with 6 short yellow lines on the occiput; frontal rostrum very broad, yellowish, with apical margin slightly thickened and feebly concave, rounded angles. Face a little longer than wide, shining brown, flat with a deep impress between the eye and the base of the mandible; top of the face a little concave, the lateral margins strongly convex between the frontal rostrum and the facial shield; cheeks brown with a whitish line. Eyes large, feebly lengthened; anterior ocellus large, round, situated on the forehead, between the antennae. First joint of the antennae bearing a very long slender process, in the shape of a hook turned inside (fig. 89). *Pronotum* strongly transverse, with anterior and posterior margins straight, parallel sides; disk yellowish with numerous small brown spots; anterior and posterior margins finely lined with brown; lateral lobes with inferior part whitish, superior part dark brown, their inferior margin straight, brown. *Abdomen* brown above, yellowish beneath. *Legs* whitish, mottled with brown. Anterior tibiae rather short, presenting a large, oval, external tympanum and a small round internal one. Posterior femora feebly striated with brown, darkened at apex; posterior tibiae armed with 5 spines on each margin, yellow with brown base. *Elytra* extending to the extremity of abdomen, translucent, darkened on the humeral edge; mirror rhomboidal, a little longer than wide, undivided; chords long, feebly curved, the first one united by 3 veinlets to the diagonal vein and the mirror; 2 oblique veins; apical field long, with 3 veins and large, irregular cells; lateral field almost transparent, with rather distant veins; *Sc.* bearing one branch near the apex. Wings short. *Genitalia* with superior bridge trilobate, the lateral lobes narrow, the median a little shorter and wider, feebly notched at apex (fig. 90).

*Length* of body 10.5 mm.; pronot. 1.9 mm.; width of pronot. 3 mm.; post. fem. 6.5 mm.; elytra 6.6 mm.

This species is easily recognized by the shape of the antennal process.

### 113. *Loxoblemmus nigriceps* Chopard

1933. *Loxoblemmus nigriceps* Chopard, *Stylops*, 2, 120, fig. 7.

♂: Small, blackish. *Head* as wide as pronotum in front, black, shining above; frontal rostrum very broad, slightly projecting, with anterior margin a little convex and feebly rounded. Face brown, shining, the facial shield feebly concave, smooth with a small projection on each side of the median ocellus which is in the middle of the shield. Maxillary palpi with brown base; 4th and 5th joints whitish, equalling the 3rd in length. Antennae brown with plain first joint. *Pronotum* rather strongly widening in front; disk blackish with a yellowish, silky pubescence and long, rufous bristles; lateral lobes entirely black. *Abdomen* black. *Legs* rather short, rufo-testaceous, marbled with brown, pubescent. Anterior tibiae perforated at their external face with a large tympanum, the internal one scarcely visible. Posterior femora thick, striated with brown. Posterior tibiae armed with 5 yellowish, rather slender spines on each margin; apical spurs rather long and slender. *Elytra* black, shining, a little shorter than the abdomen; mirror rather small, a little longer than wide, undivided, but presenting a small cell near the internal angle; diagonal vein and chords nearly straight; 2 oblique veins; apical field extremely short; lateral field black, presenting 4 parallel veins, the first of which is very distant from the *Sc*.

*Length* of body 10 mm.; post. fem. 7 mm.; elytra 4.5 mm.

*Range*.—INDIA: Sikkim: Gangtok, alt. 5,000 ft. (type, B.M.).

### 114. *Loxoblemmus truncatus* Brunner

1893. *Loxoblemmus truncatus* Brunner, *Ann. Mus. civ. St. nat. Genova (2e Ser.)*, 13, 200, pl. 6., fig. 70.

♂: *Colouration* testaceous. Frontal rostrum wholly ferruginous, truncated; forehead concave, very finely horizontally striated. Lateral lobes of *pronotum* black, with inferior margin widely pale. Posterior tibiae with 5 spines on each margin. *Elytra* extending to the apex of abdomen, testaceous-brown, with a brown humeral band; mirror rhomboidal, undivided; 3 oblique veins; lateral field presenting 5 veins. Wings caudate (after Brunner).

*Length* of body 10 mm.; pronot. 2 mm.; post. fem. 6.3 mm.; clytra 7 mm.

Brunner describes as the female of this species an insect with a transverse band on the vertex which, probably, belongs to another species.

*Range*.—BURMA: Teinzo (type, Go. M.).

### 115. *Loxoblemmus macrocephalus* n. sp.

(Fig. 94)

*Holotype*: Assam: Ledo Road, 19 miles from Ledo (J. W. H. Rehn, 20–22.IX.1944), ♂; *allotype*: same locality (19.V.1944), ♀ (Academy of Natural Sciences, Philadelphia).

♀: *Size* a little above the average in the genus. *Colouration* rufous, somewhat varied with brown, finely pubescent. *Head* very big, much broader than the pronotum, feebly convex above; rufous-brown with 6 very short yellow lines on the occiput and a narrow yellow band along the apical margin of the rostrum; frontal rostrum very wide, feebly and regularly convex, with angulate sides. Face a little wider than deep, feebly concave with carinated edges; anterior ocellus in the middle of the facial shield. Antennae with first joint plain. Maxillary palpi with 4th joint shorter than 3rd and 5th; labial palpi very long. *Pronotum* rather strongly widening in front, with anterior margin feebly convex; disk spotted with brown; lateral lobes wholly dark brown, with inferior margin ascending posteriorly. *Abdomen* brown, finely pubescent. *Legs* light rufous, feebly spotted with brown. Posterior femora rather short, thick, a little darkened at apex; posterior tibiae rather slender, armed with 5 external, 5 internal slender spines, feebly hooked at apex; tarsi long, metatarsus feebly compressed, armed above with 4 denticles on each margin; third joint of the tarsus very long. *Elytra* a little shorter than the abdomen, testaceous, translucent; mirror nearly apical, longer than broad, angulate in front, rounded behind; 5 oblique veins; apical field very short, with 3 veins and a few large cells; lateral field blackish, presenting 5 regularly spaced veins, the *Sc.* furcate. Wings very short. *Genitalia* with superior bridge trilobate, the median lobe much shorter than the lateral ones, rounded (fig. 94).

♀ (allotype). General shape and colour as in the male. *Head* not at all enlarged; frontal rostrum short and broad, with a narrow yellow band along the apical margin. *Pronotum* with parallel sides. *Elytra* extending to the middle of

abdomen, with internal margin feebly oblique, apex a little rounded; dorsal field brown with a yellowish humeral band, presenting 3 free veins and 2 branches of the cubital; reticulation formed of long, rather regular cells; lateral field deep, translucent with 5 regularly spaced veins; Sc. plain. *Ovipositor* straight, with apical valves small, a little flattened, acute at apex.

*Length* of body ♂ 15.5 mm., ♀ 14.5 mm.; pronot. 3.5 mm.; width of ♂ pronot. in front 5.2 mm.; width of ♂ head 6.5 mm.; width of frontal rostrum ♂ 3.5 mm.; post. fem. 11 mm.; elytra ♂ 7 mm., ♀ 4.5 mm.; ovipositor 9 mm.

This species is distinguished by the relatively enormous head of the male.

## 116. *Loxoblemmus latifrons* Chopard

(Fig. 96)

1928. *Loxoblemmus latifrons* Chopard, *Rec. Ind. Mus.*, 30, 19, figs. 25, 26.

♂: Rather small. *Colour* testaceous, a little variegated with brown. *Head* wide; occiput slightly convex, adorned with 3 wide rufous stripes; frontal process short, very broad, a little angular at apex. Face wholly flattened in its upper part, forming almost a triangle, without any projecting angle, margins a little curled, disk slightly concave and presenting a few transverse ridges. Mouth parts very short; palpi pale yellow. Antennae very slender, with first joint small, plain. *Pronotum* wide, with anterior and posterior margins straight; disk a little mottled with brown; lateral lobes very pale, except their superior part, which is brown. *Abdomen* brown above, yellowish beneath. *Legs* rather short, testaceous. Anterior tibiae perforated by a large external tympanum. Posterior tibiae armed with 4 or 5 spines on each margin, the first being very small; spurs rather strong, the two large internal ones equal in length; metatarsus rather short, with 5 internal and 7 external strong denticles. *Elytra* extending to the apex of abdomen, brownish; mirror very small, strongly transverse; diagonal vein long, almost straight; chords slightly curved, the internal united with the mirror by a veinlet; 2 oblique veins; apical field very short; lateral field blackish along the edge, becoming almost transparent beneath, presenting 3 straight, equidistant veins.

*Length* of body 9.5 mm.; pronot. 2.5 mm.; post. fem. 7 mm.; elytra 5 mm.

This small species is easily recognizable by the shape of the frontal process and by the strongly transverse elytral mirror.

*Range*.—INDIA: Bombay (Maharashtra): Ratnagiri Dist.; Chiplun; Vashishti Valley (type, I.M.).

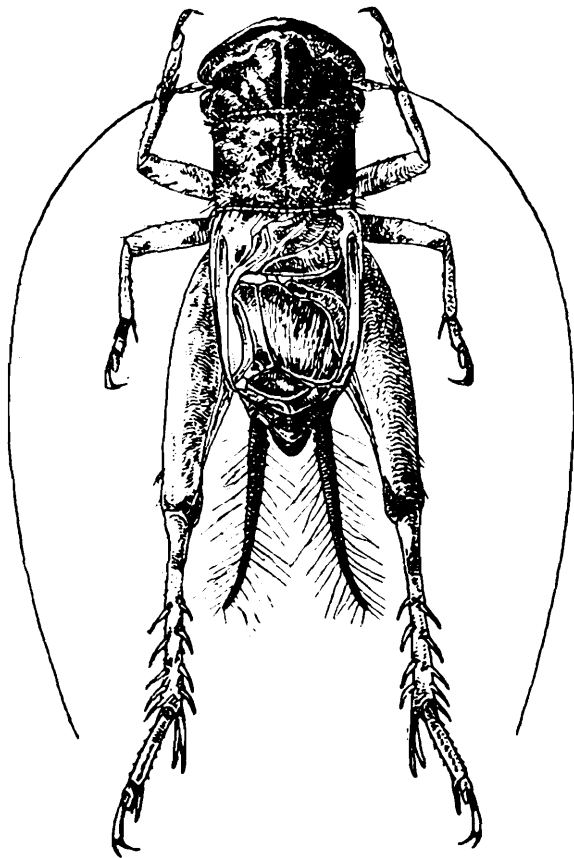


FIG. 96. *Loxoblemmus latifrons* Chop., ♂ ( $\times 5.6$ ).

### 117. *Loxoblemmus cavifrons* Chopard

1928. *Loxoblemmus cavifrons* Chopard, *Rec. Ind. Mus.*, 30, 20, figs. 27, 28.

♂: *Size* small. *Colour* rufo-testaceous. *Head* rather large, globular, shining; occiput presenting 5 light lines; vertex entirely dark brown; frontal rostrum very broad, truncated and feebly concave at apex. Face brown, except the clypeus and the bottom of facial shield, which are yellowish; shield axe-shaped and forming a rather deep hollow. Palpi yellow; 4th joint of maxillary palpi shorter than 3rd. *Pronotum* wide with anterior and posterior margins straight, sides parallel; disk rufo-testaceous, with posterior margin slightly darkened; lateral lobes very pale, their inferior margin straight. *Abdomen* yellowish. *Legs* yellowish. Anterior tibiae perforated on their external face only. Posterior

legs wanting. *Elytra* extending to the apex of abdomen, nearly transparent, darkened at both base and extremity; anal field small, the anal vein highly curved; mirror rather large, almost square; diagonal vein long, straight; chords slightly curved, very distant from the diagonal; 2 oblique veins, slightly diverging, the longer one very sinuous; apical field extremely short.

*Length* of body 8.5 mm.

A very small species remarkable by the shape of the frontal rostrum and of the facial shield.

*Range*.—INDIA: Madras: Pondicherry (type, P.M.).

### 118. *Loxoblemmus fletcheri* Chopard

1935. *Loxoblemmus fletcheri* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 289, fig. 2.

♂: *Size* small. *Colour* blackish. *Head* black; frontal rostrum very wide, lengthened in front by a large angular projection. Face hollowed, wide; labrum extremely wide; cheeks shagreened. Palpi long, brown. Antennae brown, with plain first joint. *Pronotum* transverse, slightly enlarged in front, with anterior and posterior margins straight; disk blackish-brown, a little lightened along the anterior and posterior margins; lateral lobes blackish with inferior margin slightly ascending posteriorly. *Abdomen* and cerci brown. *Legs* yellowish, pubescent. Anterior tibiae bearing a large, oval, external tympanum. Posterior tibiae armed with 5 spines on each margin, the internal much longer than the external ones; medio-internal apical spur equalling the superior one; metatarsi elongate, armed with 7–8 denticles on each superior margin. *Elytra* extending to the apex of abdomen, brown, a little coriaceous; mirror rather large, wide, angulate in front, rounded posteriorly, presenting a dividing vein quite near the apex; diagonal vein short; chords feebly convex; 2 oblique veins; apical field very short, presenting a wide reticulation; lateral field brown, showing 5 regularly distant veins.

*Length* of body 10 mm.; pronot. 2 mm.; post. fem. 6 mm.; elytra 5 mm.

This small species is remarkable for its blackish colouration and chiefly by the shape of the forehead, which somewhat reminds one of the *Lissoblemmus* from Morocco; on the other hand, the face is excavated as in *Scapsipedus*, showing no trace of a facial shield as in *Lissoblemmus*.

*Range*.—INDIA: Assam: Shillong, alt. 4,900 ft. (type, B.M.).



## Genus COIBLEMMUS Chopard

1936. *Coiblemmus* Chopard, *Ceyl. J. Sc.*, (B) 20, 30.

*Type*.—*Homaloblemmus compactus* Chopard.

*Range*.—South India, Ceylon.

This genus is close to *Scapsipedus* Sauss., and *Homaloblemmus* Sauss., from Mozambique; as in those two genera, the face is much flattened, even concave; the frontal rostrum is very broad between the antennae, somewhat prominent, with rounded angles, forming a slight protuberance, the apex of which is depressed in the shape of a small soft cupola which is probably turgescient in life.

### 119. *Coiblemmus compactus* (Chopard)

(Figs. 95, 97)

1928. *Homaloblemmus compactus* Chopard, *Spol. Zeyl.*, 14, 201, pl. 13, figs. 5, 6.

1933. *Homaloblemmus cavifrons*, Chopard, *Stylops*, 2, 116, fig. 3.

1936. *Coiblemmus compactus* Chopard, *Ceyl. J. Sc.*, (B) 20, 30.  
Sandra sagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 547.

♂: Rather large and stout. *Head* as wide as pronotum; occiput adorned with very short, scarcely visible, light bands; vertex brown, shining, feebly convex; frontal rostrum very wide between the antennae, more or less prominent in front, rounded. Face very wide, short, rufous; facial shield concave or even deeply excavated under the protuberance; the part of the protuberance beneath the anterior ocellus forming a small depression which gives the idea that this part may be turgescient in the living insect; cheeks yellow beneath the eyes. Palpi whitish; 4th joint of maxillary palpi nearly equal to 3rd, 5th weakly enlarged, brown beneath. Antennae rufous with plain first joint. Eyes feebly projecting; lateral ocelli united by a small yellow line. *Pronotum* transverse, very slightly widening in front, with anterior margin only very slightly concave, posterior margin straight; disk convex, rufous-brown, somewhat variegated with yellow; lateral lobes with inferior margin slightly ascending posteriorly, the inferior part yellowish, the superior presenting an irregular brown band. *Abdomen* brown; subgenital plate very narrow at apex. *Legs* rather short, yellowish, a little mottled with brown. Anterior tibiae with a large external tympanum. Posterior femora very thick; posterior tibiae presenting a strong armature, the spines, 6 external, 5 or 6 internal, being very closely set; spurs relatively very long, both inferior ones

equal in length, supero-external equal to the last spine, median nearly twice as long; the two large internal spurs long and especially strong, the superior a little shorter than the median one; metatarsi armed with two strong apical spurs and 5 internal, 7 external denticles. *Elytra* extending to the apex of abdomen or nearly so, rufo-testaceous; mirror

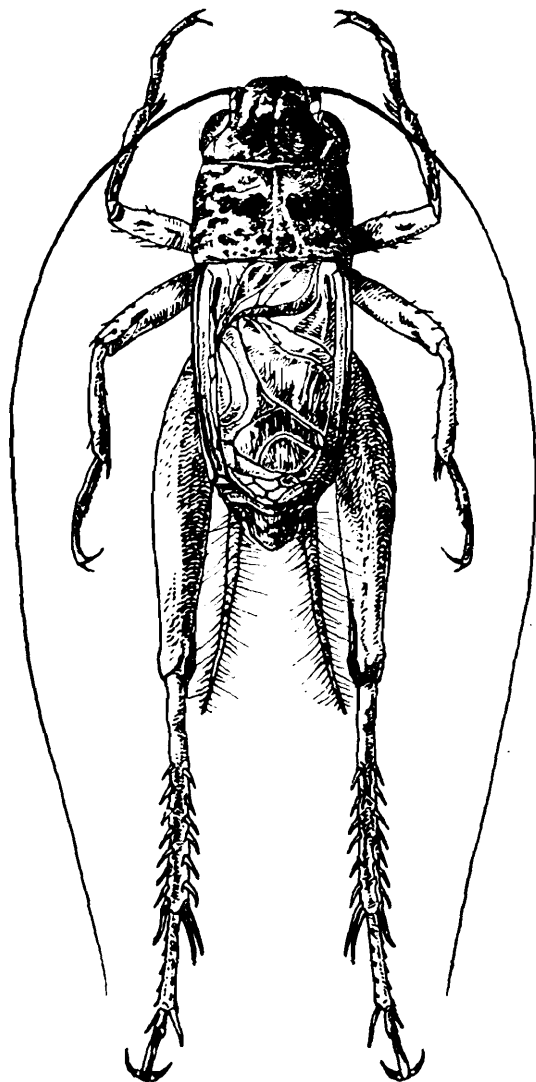


FIG. 97. *Coiblemmus compactus* Chop., ♂ ( $\times 2.65$ ).

almost as long as wide, rounded posteriorly, its anterior angle very obtuse, divided by a much arcuated vein; diagonal vein a little curved towards the first chord; 2 oblique veins; apical field very short, presenting two rows of wide, irregular cells; lateral field brown along the humeral edge, almost transparent beneath, presenting 5 veins, regularly distant.

Wings short. *Genitalia* of the *Scapsipedus* type, with superior bridge trilobate, the median lobe very short (fig. 95).

♀: *Head*, *pronotum* and *legs* as in the male, but the face much less flattened and the frontal rostrum shorter. *Abdomen* brownish, marbled with small yellow and dark dots above, yellowish beneath. *Elytra* short, contiguous on the median line, their internal margin strongly oblique, their surface feebly pubescent; dorsal field brown with a humeral yellow band, presenting 7 plain, somewhat irregular and anastomosed veins; lateral field high, yellowish with superior part blackish, presenting 5 regular veins. *Ovipositor* straight, slender, with apical valves very small, lanceolate, acute.

*Length* of body 18–19 mm.; pronot. 4–4.5 mm.; post. fem. 12.5–13 mm.; elytra ♂ 8–9 mm., ♀ 3 mm.; ovipositor 12 mm.

This species is very remarkable, especially the large examples in which the face is strongly excavated.

*Range*.—INDIA: Madras (type of *cavifrons*, B.M.): Nedungadu; Chepat Polur (Phil. M.). CEYLON: Elephant Pass (type of *compactus*, B.M.); Yala; Vavuniya; Wellawaya; Marichchukkaddi; Mihintale (Col. M.).

## Genus STEPHOBLEMMUS Saussure

1877. *Stephoblemmus* Saussure, *Mém. Soc. Genève*, 25, 259.

*Type*.—*Stephoblemmus humbertiellus* Saussure.

*Range*.—Ceylon.

Head of the male short, flattened in front, the face being oblique. Vertex forming, between the eyes, a very large transverse, compressed, ascending process; this process is continued by a corneous plate prolonging the oblique surface of the facial shield. Legs rather slender. Elytra a little shortened; mirror well developed. Female unknown.

### 120. *Stephoblemmus humbertiellus* Saussure

(Fig. 98)

1877. *Stephoblemmus humbertiellus* Saussure, *Mém. Soc. Genève*, 25, 260, pl. 13 (XVII), figs. 1–3. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 515. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 31. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 548.

♂: Rather small. *Head* a little broader than the pronotum, blackish. Vertex short, forming between the antennae a transverse process, ending in a flat corneous plate, ascending and widening towards the top, with feebly arcuate superior

margin, curved forwards and notched in the middle. Face brown, the superior part of the process light brown, translucent. *Pronotum* a little widening in front, blackish; lateral lobes spotted with yellowish. *Legs* brown. Anterior tibiae with a large external tympanum and a very small internal one. Posterior femora rather long, feebly dilated at base; posterior tibiae armed with 6 spines on each superior margin. *Elytra* a little shortened, testaceous-brown; mirror in the shape of a very long lozenge, irregular with right anterior angle; 2 oblique veins; apical field almost null; lateral field with 4 veins, 2 almost straight and 2 strongly curved; *Sc.* bearing one branch. No wings.

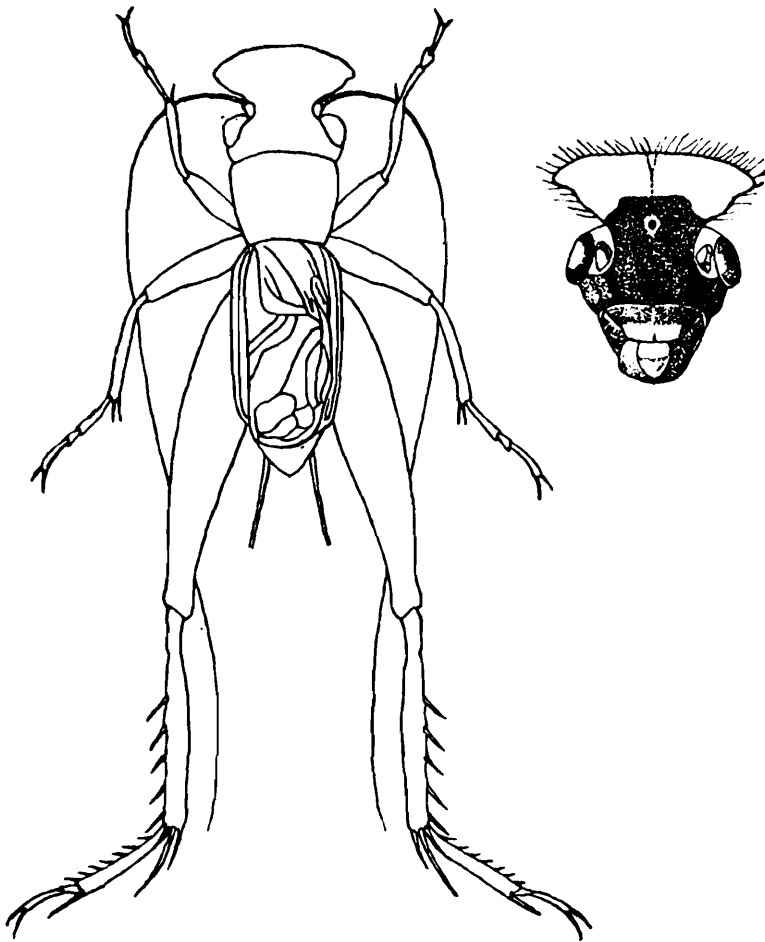


FIG. 98. *Stephoblemmus humbertiellus* Sauss. (after Saussure),  
♂ (× 3·4).

*Length* of body 12 mm.; pronot. 2·5 mm.; post. fem. 7 mm.; elytra 5·3 mm.

*Range*.—CEYLON: in the mountains, without exact locality (type in Saussure's collection, G.M.); Alutnuwara (Col. M.).

### Genus PARASCIOBIA Chopard

1935. *Parasciobia* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 290.

*Type*.—*Parasciobia indica* Chopard.

*Range*.—Assam.

Head of the male presenting a membranaceous veil as in the African *Sciobia*, but the elytral venation more complete, with normal mirror. Female with very short elytra.

#### 121. *Parasciobia indica* Chopard

1935. *Parasciobia indica* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 290, fig. 3.

♂: *Size* small. *Colour* brown. *Head* as wide as pronotum; eyes wide apart; vertex prolonged in a rather large, truncated veil. Face flattened, shining; frontal process widening above the antennae, parallel-sided distally. *Pronotum* transverse, widening a little in front; disk feebly convex, brown, pubescent; lateral lobes concolorous with inferior margin slightly ascending posteriorly. *Abdomen* brown. *Legs* testaceous-brown, pubescent. Anterior tibiae perforated on their external face only. Posterior tibiae armed with 4 external, 5 internal spines; supero-internal apical spur shorter than the median one. *Elytra* a little shorter than the abdomen; mirror small, irregularly rounded, undivided; diagonal vein rather long, straight; chords feebly convex; 2 oblique veins; apical field extremely short; lateral field brown, presenting 3 distant veins. No wings.

♀: A little larger than the male; blackish, pubescent. *Head* black; vertex very broad, convex, truncated at apex; face declivent, a little flattened. *Pronotum* and *legs* as in the male; posterior tibiae with 4 spines on each margin. *Abdomen* brown. *Elytra* very short, extending only to the apex of metanotum, widely separated on the median line, presenting 6 longitudinal veins in the dorsal field. *Ovipositor* short, straight, with apical valves acute, in the shape of a beak.

*Length* of body 11 mm.; pronot. 2.2 mm.; post. fem. 6.5 mm.; elytra ♂ 4 mm.; ovipositor 5.5 mm.

*Range*.—INDIA: Assam: Shillong, alt. 5,000 ft. (type, B.M.).

### Genus MERISTOBLEMMUS Jones and Chopard

1936. *Meristoblemmus* S. Jones and Chopard, *Ann. Mag. nat. Hist.*, (10) 18, 234.

*Type*.—*Meristoblemmus lobifrons* Jones and Chopard.

*Range*.—Travancore State (Kerala).

The type species of this genus presents in the male a very large frontal process, as in *Loxoblemmus*, but supplied by an articulated veil, deeply divided into two large lobes; the elytra are short, membranaceous, with well-defined mirror. In the female the head is simply flattened in front, the elytra are very much reduced, but not lobiform.

## 122. *Meristoblemmus lobifrons* Jones and Chopard

1936. *Meristoblemmus lobifrons* Jones and Chopard, *Ann. Mag. nat. Hist.*, (10) 18, 234, figs. 1-5.

♂: *Size* medium. *Colour* rufous varied with brown, pubescent. *Head* large; frontal rostrum presenting an enormous sub-pentagonal process; at apex of this process a membranaceous veil is articulated, which is deeply divided into two lengthened lobes; on each side of these lobes is a small rounded articulated piece. The lobes of the veil are normally applied against the inferior face of the frontal process; each of them is convex outside and concave inside; their inner surface bears scattered sensory hairs arising from minute cup-like depressions. Face flattened, the anterior ocellus in the middle of the inferior part of the facial process. Palpi long, especially the 5th joint of the maxillary ones. Antennae brown, with simple first joint. *Pronotum* transverse, with anterior margin very feebly concave, posterior one straight, sides feebly convex; disk almost flat, rufous, a little darkened towards the posterior margin; lateral lobes with inferior margin slightly ascending posteriorly, their superior part brown, the inferior one yellowish with a narrow black margin. *Abdomen* rufous with a few small brown spots, the three first tergites presenting a row of close bristles. *Legs* short, yellowish, with a few brown spots. Anterior tibiae perforated on the external face only with an oval tympanum. Posterior femora thick; posterior tibiae armed with 6 external, 5 internal spines; supero-internal apical spur a little shorter than the median one; metatarsi rather long, a little compressed, armed with 5 to 7 denticles on each margin. *Elytra* not extending beyond the third abdominal tergite, brownish with almost transparent parts; mirror subtriangular, situated nearly at apex of the elytron, its external angle acute, the anterior almost a right angle; diagonal and chords rather long; 2 oblique veins; anal field relatively large, the stridulating vein curved, with a rounded angle; apical field

reduced to a row of a few large cells; lateral field blackish, with plain *Sc.* and 4 regularly spaced veins. No wings.

♀: Frontal rostrum very wide, subangular, feebly projecting. Face nearly as much flattened as in males of *Loxoblemmus*. *Elytra* very short, but contiguous on the median line; dorsal field forming a narrow band with oblique inferior margin and scarcely visible veins; lateral field larger, brown, with 4 veins. *Ovipositor* rather short but very slender, with acute apical valves, the superior longer than the inferior ones and a little curved downwards.

*Length* of body ♂ 19 mm., ♀ 21 mm.; post. fem. ♂ 9.5 mm., ♀ 11 mm.; elytra ♂ 6 mm., ♀ 1.5 mm.; length of frontal projection ♂ 2.5 mm.; ovipositor 10 mm.

*Range*.—INDIA: Travancore (Kerala); Kovalam (type, Mas. M.).

### Genus LANDREVA Walker

1869. *Landreva* Walker, *Cat. Derm. Salt. Br. M.*, 1, 55.

1877. *Ectolandrevus* Saussure, *Mém. Soc. Genève*, 25, 271.

*Type*.—*Gryllus clarus* Walker.

*Range*.—India, Ceylon.

Body a little depressed, feebly pubescent, more or less shining. Head a little flattened; frontal rostrum sloping, rather narrow and projecting; face short. Legs as in *Gryllus* but the posterior tibiae presenting a few denticles before the spines; anterior tibiae perforated on their external face only by a rather small, oval tympanum. *Elytra* of male truncated, with very short apical field, numerous oblique veins; *elytra* of the female short or reduced to lateral pads.

### Key to the species of LANDREVA

- |   |   |                                 |   |
|---|---|---------------------------------|---|
| 1 | Posterior tibiae with internal margin unarmed before the spines.                          | <i>subaptera</i> Chop., p. 145. |   |
|   | Posterior tibiae armed on both margins before the spines..                                |                                 | 2 |
| 2 | Frontal rostrum as wide as first antennal joint, with parallel margins..                  | <i>clara</i> (Walk.), p. 141    |   |
|   | Frontal rostrum narrower than the first antennal joint, with slightly converging margins. |                                 | 3 |
| 3 | <i>Elytra</i> of female contiguous on the median line. . . . .                            | <i>semialata</i> Chop., p. 146  |   |
|   | <i>Elytra</i> of the females more or less separated on the median line.                   |                                 | 4 |
| 4 | Rather small species (13 mm.).  | <i>hemiptera</i> (Bol.), p. 146 |   |
|   | Larger species (20–23 mm.)..  |                                 | 5 |

- |   |   |                                   |
|---|---|-----------------------------------|
| 5 | Elytral mirror of male very narrow and elongated, scarcely distinct from the apical reticulation... | 6                                 |
|   | Elytral mirror of male well separated from the apical reticulation...                               | <i>angustifrons</i> Chop., p. 145 |
| 6 | Frontal rostrum narrow, feebly furrowed; mirror still distinct from the apical cells.               | <i>insignis</i> Walk., p. 142     |
|   | Frontal rostrum wider, flat above; mirror quite confused with the apical cells                      | <i>ebneri</i> n. sp., p. 143      |

*Key to the species (♀ only)*

- |   |  |                                   |
|---|--|-----------------------------------|
| 1 | Elytra contiguous on the median line.  | 2                                 |
|   | Elytra more or less separated on the median line.                                  | 3                                 |
| 2 | Elytra reduced to lateral pads.  | 4                                 |
|   | Elytra extending to the apex of metanotum, obliquely truncated.                    |                                   |
| 3 | Shape stout; posterior tibiae armed on both margins, before the spines.            | <i>clara</i> (Walk.), p. 141      |
|   | Shape more slender; internal margin of posterior tibiae unarmed before the spines. | <i>subaptera</i> Chop., p. 145    |
| 4 | Rather small (13 mm.).   | <i>hemiptera</i> (Bol.), p. 146   |
|   | Larger species (20–23 mm.).  | 5                                 |
| 5 | Frontal rostrum flat; dorsal field of elytra with 5 veins.                         | <i>insignis</i> Walk., p. 142     |
|   | Frontal rostrum a little convex above; dorsal field of elytra with 3 veins.        | <i>angustifrons</i> Chop., p. 145 |

### 123. *Landreva clara* (Walker)

(Fig. 99)

1869. *Gryllus clarus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 39.  
 1877. *Landrevus clarus* Saussure, *Mém. Soc. Genève*, 25, 278.  
 1925. *Landreva clara* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 516, figs. 8–10. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 35.

*Size* large. *Colour* rufous-brown; body a little depressed, shining, but with a fine, silky and rather abundant pubescence. *Head* wide, particularly in the male; frontal rostrum short, flat, finely shagreened; 5th joint of maxillary palpi triangular. *Pronotum* transverse, widening a little in front. *Abdomen* wide, a little depressed. *Legs* short and strong. Anterior tibiae with an external tympanum. Posterior femora thick, darkened at apex; posterior tibiae strong, armed with 4 spines on each superior margin, and 8 internal, 10 external denticles at base.



♂: *Elytra* extending to the middle of fourth abdominal tergite, rounded at apex and on the internal margin; mirror transverse, small; diagonal vein long, very obliquely directed; 3 chords, the two internal of which are curved, the first sending a branch to the mirror; 7 oblique veins, among which two long ones, separated from the other five, which are short; stridulating vein very sinuate; apical field very much reduced (fig. 99).

♀: *Elytra* very short, lateral, presenting few straight veins. *Ovipositor* rather long, straight, with apical valves lanceolate, the inferior much shorter than the superior ones.

*Length* of body 18–20 mm.; pronot. 3–3.5 mm.; elytra ♂ 5–7 mm., ♀ 3 mm.; ovipositor 15 mm.

*Range*.—CEYLON: without locality (type, B.M.), Battaramulla; Labugama; Haldummulla; Balangoda; Peradeniya; Marai Villu; Hakgala (Col. M.); numerous localities (Sandrasagara).

#### 124. *Landreva insignis* Walker

1869. *Landreva insignis* Walker, *Cat. Derm. Salt. Br. M.*, 1, 55.  
Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 35.

1877. *Landrevus pictus* Saussure, *Mém. Soc. Genève*, 25, 278.  
Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 549.

♂: *Colouration* rufous-brown, shining. *Head* a little wider than the pronotum in front; occiput convex, presenting tracks of narrow, brown lines; frontal rostrum narrow, with slightly converging, feebly keeled margins; posterior ocelli united by a small oblique keel. *Pronotum* a little broader than long, with anterior margin concave, posterior one feebly convex; disk rufous, a little flattened; lateral lobes concolorous, with inferior margin strongly ascending posteriorly. *Abdomen* shining brown, feebly pubescent. *Legs* short and strong, a little lighter than the body. Anterior tibiae perforated with a large external tympanum. Posterior tibiae armed with 4 spines on each margin, and 3 to 4 denticles at base on internal margin, about 10 on external one. *Elytra* extending to the apex of fourth abdominal tergite, rounded posteriorly; mirror nearly apical, very narrow and lengthened; diagonal vein long, sinuated, coming almost to the external angle of the mirror; apical field very short, presenting only a few large, badly defined cells; chords a little diverging, the first one united to the internal angle of the mirror by a veinlet; stridulating vein strongly sinuated; 6 oblique veins, the two first long, arising from the anal knot; lateral field with 5 close veins, sinuated towards the apex, and 3 branches of the *Sc*.

♀: Similar to the male. *Abdomen* a little pubescent, with a faint median brown band. *Elytra* very widely separated on the median line, no longer than the metanotum, their internal margin very oblique; dorsal field rufous-brown with a yellowish spot at base, presenting 5 parallel veins, united by numerous transverse veinlets; lateral field with 3 much curved veins and the *Sc.* which is plain. *Ovipositor* rather long, slender, with small, lanceolate, acute apical valves.

*Length* of body ♂ 21–23 mm., ♀ 20–26 mm.; elytra ♂ 7.5–8.5 mm., ♀ 3–3.5 mm.; ovipositor 14–18 mm. (23 mm. in the type of *pictus*).

Close to the preceding but differing from it in the narrower frontal rostrum, the shape of the elytral mirror in the male, and the longer elytra in the female.

*Range*.—CEYLON: without locality (type, B.M.); Maskeliya; Labugama; Morningside; Rakwana, alt. 4,000 ft. (Col. M.); without locality (type of *pictus*, Ber. M.).

## 125. *Landreva ebneri* n. sp.<sup>1</sup>

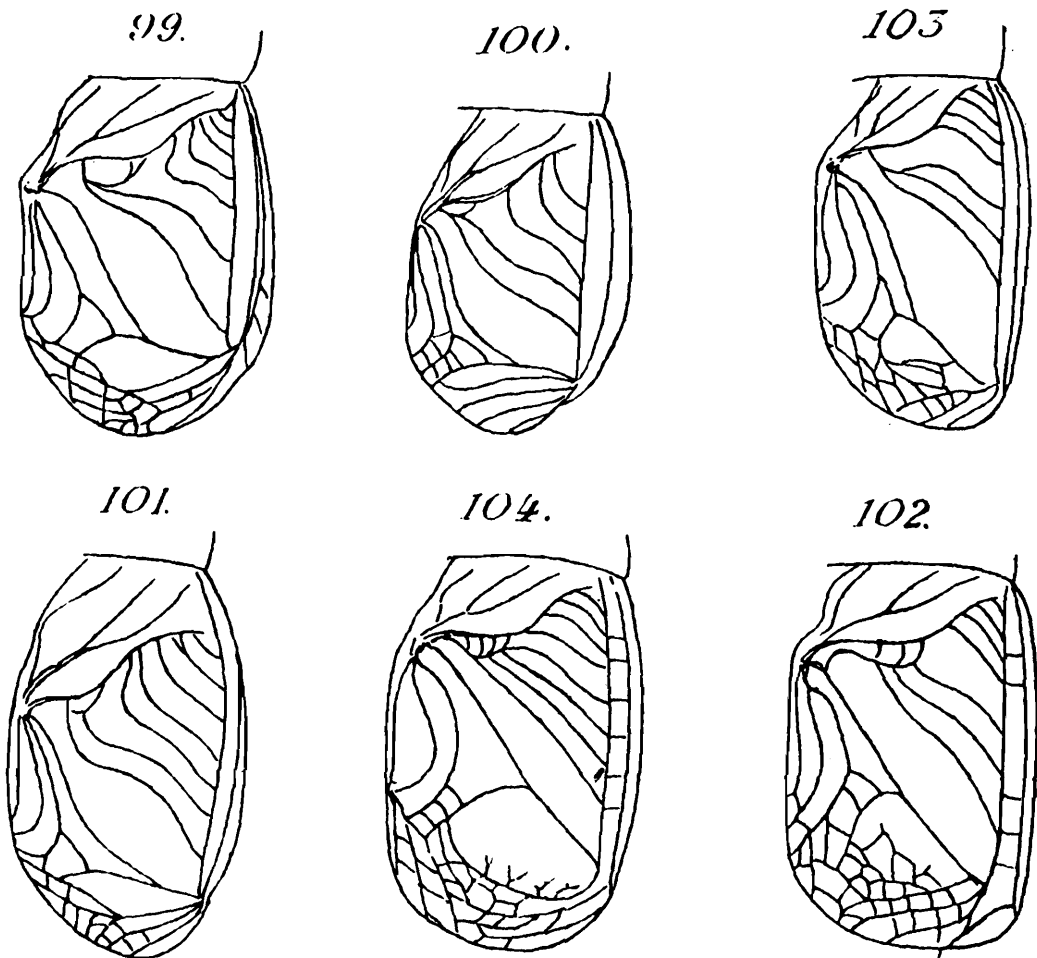
*Holotype*: Sikkim ♂ (Vienna Museum).

*Colour* rather dark brown, shining, feebly pubescent. *Head* as wide as pronotum, very feebly shagreened; frontal rostrum almost as wide as first antennal joint, with feebly converging margins, flat above. Face very short and wide. Eyes very little projecting; ocelli small, the anterior one in the middle of the rostrum. Antennae and palpi brown; 5th joint of maxillary palpi enlarged at apex, feebly securiform. *Pronotum* wider than long, with anterior margin a little concave, posterior margin straight, both bordered by an outer ridge and a parallel shallow furrow; disk almost flat with median line furrowed; lateral lobes with inferior margin strongly ascending posteriorly, anterior angle much rounded. *Abdomen* rather narrow; 9th tergite with posterior margin convex; subgenital plate narrowing towards the apex. *Legs* lighter coloured than the body. Anterior and median femora rather thick, a little compressed, testaceous with apex darkened; tibiae light brown, the anterior ones perforated with a small oval tympanum on the external face; tarsi long, chiefly the third joint. Posterior femora thick, testaceous with a rather large brown apical spot; posterior tibiae presenting in the basal half 10 small external and 6 internal denticles; their distal

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<sup>1</sup> Named in honour of Professor R. Ebner, the distinguished Austrian orthopterist.

half armed with 4 rather strong, short spines; externo-apical spurs short, the median longer than the other two; median and superior internal spurs rather long, equal; metatarsi long, armed with 5 denticles on each superior margin. *Elytra* (fig. 100) extending to the middle of second abdominal tergite, rounded at apex; mirror reduced to a long, narrow cell, the apex of the elytron occupied by four almost parallel, transverse veins; 6 oblique veins; lateral field high, with 5 close, parallel veins and the *Sc.* furcate near the middle.



FIGS. 99 to 104. Right elytron of: 99. *Landreva clara*, 100. *L. ebneri*, 101. *L. angustifrons*, 102. *Duolandrevus coulonianus*, 103. *D. intermedius*, 104. *D. rufus*.

*Length* of body 22.5 mm.; pronot. 3.5 mm.; post. fem. 14 mm.; elytra 5 mm.

In this species the frontal rostrum is almost as wide as in *L. clara* Walk., the mirror is more like that of *insignis* Walk., but so narrow that it is nearly impossible to distinguish it from the apical cells.

## 126. *Landreva subaptera* Chopard

1925. *Landreva subaptera* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 517, fig. 11. Chopard, 1936, *Ceyl. J. Sc.*, (B) 29, 35. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 549.

♀: Slender. *Colour* ferruginous-brown, shining. *Head* a little wider than the pronotum, with frontal rostrum short, rounded. *Pronotum* transverse, strongly dilated anteriorly; inferior margin of lateral lobes ascending posteriorly. *Abdomen* rather narrow and long. *Legs* rather strong, testaceous. Posterior femora moderately swollen; tibiae armed with 4 spines on each margin and 4 denticles at base of external margin only; inferior apical spurs rather long, subequal; supero-external spur somewhat transferred to the superior margin and a little shorter than the last spine; supero-internal and intermediate spurs subequal in length, rather long, the median very pubescent. *Elytra* very small, lateral, presenting a few straight veins. *Ovipositor* a little longer than the cerci, straight and slender, with apical valves lanceolate.

*Length* of body 17 mm.; pronot. 2.5 mm.; post. fem. 10 mm.; post. tib. 7 mm.; ovipositor 12 mm.

Close to the preceding, but more slender and with posterior tibiae more feebly armed.

*Range*.—CEYLON: Namunukula, alt. 6,600 ft. (type, B.M.); Ohiya; Ratnapura; Hambantota (Col. M.).

## 127. *Landreva angustifrons* Chopard

(Fig. 101)

1936. *Landreva angustifrons* Chopard, *Ceyl. J. Sc.*, (B) 20, 36, fig. 5. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 549.

♂: Very close to *insignis* Walk. *Head*: Frontal rostrum narrow, but convex above; no small keel between the lateral ocelli; last joint of the maxillary palpi a little longer, triangular. *Legs*: Posterior tibiae presenting at base 6 internal, 8 external denticles. *Elytra* (fig. 101) with a well-defined mirror, in the shape of a lengthened oval, twice as broad as long; diagonal vein coming about the middle of the anterior margin of the mirror; lateral field with 5 close, nearly straight veins; *Sc.* bearing one branch.

♀: *Head* as in the male. *Elytra* a little narrower than in *insignis*, the dorsal field presenting three veins only. *Ovipositor* long and slender.

*Length* of body 20–21 mm.; post. fem. 13·5–14·5 mm.; elytra ♂ 9 mm., ♀ 2·5 mm.; ovipositor 16 mm.

As in *L. insignis* Walk., the frontal rostrum of this species is narrow, but convex and not flat above; the elytral mirror of the male is rather like that of *L. clara*; the female is very close to *insignis* but with still narrower elytra.

*Range*.—CEYLON: Labugama (type, Col. M.); Mousakande; Gammaduwa (Col. M.).

## 128. *Landreva hemiptera* (Bolivar)

1900. *Landrevus hemipterus* Bolivar, *Ann. Soc. ent., Fr.*, 68 (1899), 800, pl. 12, fig. 24.

1933. *Ectolandrevus hemipterus* Chopard, *Rev. Suisse Zool.*, 40, 165.

♀: Chocolate-brown; *head* and *pronotum* spotted with brownish. Pronotum transverse, with straight posterior margin. *Legs* lighter than the body. Anterior tibiae perforated on the external face with an oval tympanum. Posterior tibiae armed with 4 spines on each margin and 6 or 7 basal denticulations. *Elytra* a little shorter than pronotum, separated on the median line, with oblique internal margin. *Ovipositor* rather short.

*Length* of body 13 mm.; pronot. 2 mm.; post. fem. 9 mm.; elytra 1·5 mm.; ovipositor 8·5 mm.

This species is close to the preceding, but much smaller.

*Range*.—INDIA: Madras: Madura (type in Bolivar's collection, M.M.); Nilgiris (G.M.).

## 129. *Landreva semialata* Chopard

1928. *Landreva semialata* Chopard, *Rec. Ind. Mus.*, 30, 20, fig. 29.  
Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 292.

♀: *Size* rather large. *Colour* rufous-brown. *Head* shining, without any ornamentation; palpi whitish. *Pronotum* feebly widening anteriorly, with anterior margin rather strongly concave, posterior margin straight; disk uniformly brown; lateral lobes black with anterior angle yellowish, covered with a whitish pubescence. *Abdomen* brownish, pubescent, with small black spots along the posterior margin of the tergites. *Legs* lighter than the body, a little mottled with brown. Anterior tibiae perforated on their external face. *Elytra* extending no farther than the first abdominal tergite, but touching each other along the median line; dorsal field very obliquely truncated at apex, the internal margin short, much

rounded; 5 longitudinal veins, faintly visible, and united by a very irregular reticulation; humeral band light coloured; lateral field rather high, with 5 regularly distant, parallel veins; *Sc.* furcate near the apex. *Ovipositor* straight, long, with apical valves narrow and equal in length as in species of the genus *Gryllus*.

♂: Rufous-brown, shining. *Head* broad; frontal rostrum much narrower than the first antennal joint. Face wide and very short, smooth; cheeks smooth. *Pronotum* transverse; lateral lobes with inferior margin strongly ascending posteriorly. *Legs* rufous. Posterior femora strongly dilated at base; posterior tibiae armed with 4 spines on each margin, strongly denticulated before the spines; posterior metatarsi long, armed with 5 strong denticles on each margin. *Elytra* extending to the middle of the 4th abdominal tergite; mirror very small, triangular, almost confounded with the apical reticulation; stridulating vein strongly sinuated; 5 oblique veins, 2 of which long, united at base, and 3 short in the angle of the stridulating vein; lateral field with 4 close, parallel veins; *Sc.* furcate near the base.

*Length* of body ♂ 16.5 mm., ♀ 19 mm.; pronot. ♂ 2.5 mm., ♀ 3.5 mm.; post. fem. ♂ 11 mm.; elytra ♂ 6 mm., ♀ 3 mm.; ovipositor 14 mm.

Distinguished by the elytra of female being more developed than in the other species of the genus.

*Range*.—INDIA: Kashmir: Punch; Nadar (B.M.). Madras. Mysore: Kanara Dist.; Talwadi, Lat. 17° 30' N., Long. 76° 45' E. Bombay (Maharashtra). Kavali, Lat. 19° 35' N., Long. 77° 30' E. (P.M.).

## Genus DUOLANDREVUS Kirby

1877. *Landrevus* Saussure, *Mém. Soc. Genève*, 25, 271.

1906. *Duolandrevus* Kirby, *Syn. Cat. Orth.*, 2, 50.

*Type*.—*Gryllus brachypterus* Haan.

*Range*.—Malaya, Indonesia.

This genus differs from *Landreva* by the presence of two tympana on the anterior tibiae.

### Key to the species of DUOLANDREVUS

- |   |                                   |
|---|-----------------------------------|
| <p>1 Elytral mirror of male small, partly overspread by the reticulation of the apical field.</p> | 2                                 |
| <p>Elytral mirror of male rather large and perfectly distinct from the apical reticulation.</p>   | <p><i>rufus</i> Chop., p. 149</p> |

- 2 Size larger (20.5 mm.); elytra of male presenting 3 long oblique veins separated from the base, and 4 or 5 small ones in the angle of the stridulating vein

*coulonianus* (Sauss.),  
p. 148

Size small (16 mm.); in the male elytra 3 long oblique veins united at base, and 3 shorter ones in the angle

*intermedius* n. sp., p. 148

### 130. *Duolandrevus coulonianus* (Saussure)

(Fig. 102)

1877. *Landrevus coulonianus* Saussure, *Mém. Soc. Genève*, **25**, 273, pl. 14 (XXV), fig. 1.

1931. *Duolandrevus coulonianus* Chopard, *Bull. Raffles Mus.*, No. 6, 131.

♂: Rather large species of an orange-fulvous colouration. *Head* adorned with 4 more or less visible pale lines. Face dark brown between the antennae. *Pronotum* transverse, rufous. *Abdomen* rufous with the posterior margin of the tergites darkened. *Legs*: Posterior femora short and stout; posterior tibiae short, armed with 4-5 spines on each margin and 7-8 basal denticles; metatarsi long, strongly serrulated above. *Elytra* (fig. 102) leaving uncovered the five last abdominal segments; mirror small, obliquely rectangular, with rounded angles, more or less overspread by the reticulation of the apical field; 5 or 6 oblique veins, three of which are long, arcuate, the others short; apical field very short; lateral field dark, presenting 5 veins. No wings.

*Length* of body 20.5 mm.; pronot. 3-3.2 mm.; post. fem. 13 mm.; elytra 8 mm.

*Range*.—MALAYA: Pahang: Lubok Tamang, alt. 3,500 ft.; Cameron's Highlands, alt. 4,800 ft. (Sel. M.). JAVA (type, Neuchâtel Museum).

### 131. *Duolandrevus intermedius* n. sp.

(Fig. 103)

*Holotype*: Malaya: Perak: Gunong Kladang, ♂ (Paris Museum).

*Head* as wide as pronotum; frontal rostrum a little narrower than the first antennal joint. Face and cheeks smooth. Maxillary palpi with 4th joint a little shorter than 3rd, 5th equalling 4th, triangular, truncated at apex. Eyes rounded, feebly projecting; ocelli small, especially the anterior one.

*Pronotum* transverse, with anterior margin feebly concave, posterior margin straight; disk rufous-brown, pubescent; lateral lobes concolorous, with inferior margin ascending posteriorly. *Abdomen* brown, finely pubescent. *Legs* rufous, lighter than the body. Anterior tibiae perforated on both faces with a small, almost round tympanum. Posterior femora thick, rufous; posterior tibiae armed with 4 spines on each margin and 8 basal denticles on the external margin, 6 on the internal; posterior metatarsi compressed, armed with 5 internal, 6 external denticles. *Elytra* (fig. 103) extending to the apex of the 6th abdominal tergite, with feebly rounded posterior margin; mirror rather well defined anteriorly, but filled by a few large cells posteriorly; diagonal vein almost straight; 3 oblique veins united at base quite near the anal knot, and 4 small others in the angle of the stridulating vein; lateral field with 5 parallel veins. No wings.

*Length* of body 16 mm.; pronot. 3.1 mm.; post. fem. 12 mm.; elytra 7 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur (Sel. M.).

### 132. *Duolandrevus rufus* Chopard

(Figs. 104, 105)

1931. *Duolandrevus rufus* Chopard, *Bull. Raffles Mus.*, No. 6, 131, figs. 1, 2.

♂: Size and general habitus of *coulonianus* (Sauss.). *Colour* rufous-brown, shining, feebly pubescent. *Head* with frontal rostrum as wide as first antennal joint, with parallel margins. Face brown, shining. *Pronotum* transverse, with anterior margin feebly concave; disk rather convex, covered with a silky whitish pubescence. *Abdomen* dark brown, feebly pubescent on the sides. *Legs* rather short, rufous. Anterior tibiae perforated on both inner and outer side. Posterior tibiae bearing 4 spines on each margin and 4–5 basal denticulations. *Elytra* (fig. 104) extending to the seventh abdominal tergite, rounded at apex; mirror large, with internal margin rounded, external angle acute, presenting a few reticulations only along the posterior margin; apical field very short, presenting two veins; diagonal vein straight; chords regularly curved; 5 oblique veins, starting from a false vein parallel to the stridulating vein, and 3 small ones from the angle of the stridulating; lateral field with 5 plain, parallel, regular veins.



♀: Similar to the male; denticulations of the posterior tibiae a little weaker. *Elytra* scarcely exceeding the metanotum, with internal margin very oblique, coming in contact with the other elytron on the median line; 4 veins in the dorsal field, feebly indicated and even disappearing at base of the elytron, which is opaque and somewhat thickened; lateral field high, with 5 parallel veins. *Ovipositor* a little shorter than the cerci, rather slender, with apical valves small, acute.

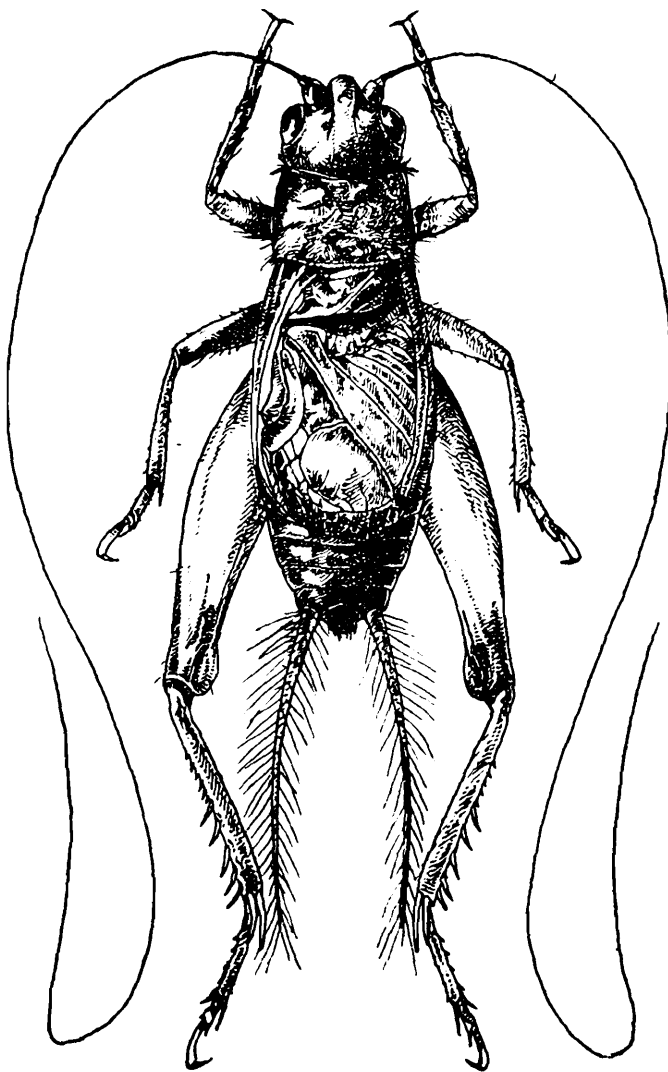


FIG. 105. *Duolandrevus rufus* Chop., ♂ ( $\times 2.33$ ).

*Length* of body 19–20 mm.; pronot. 3.3–3.5 mm.; post. fem. 12.5–14 mm.; elytra ♂ 10.5 mm., ♀ 3 mm.; ovipositor 11.5 mm.

*Range*.—MALAYA: Perak: Batang Padang (type, Sel. M.). Pahang: Lubok Tamang (Sel. M.). PENINSULAR SIAM: Nakonsri Tamarat; Khao Luang (Sel. M.).

## Genus ENDOLANDREVUS Saussure

1877. *Endolandrevus* Saussure, *Mém. Soc. Genève*, **25**, 272.

*Type*.—*Landrevus* (*Endolandrevus*) *rostratus* Saussure.

*Range*.—Malaya, Java, Moluccas, Amboina, New Guinea, Dornea, Sarawak.

Similar to *Landreva* but the anterior tibiae perforated on the internal face only.

### 133. *Endolandrevus tomentosus* Chopard

1931. *Endolandrevus tomentosus* Chopard, *Bull. Raffles Mus.*, No. 6, 132, fig. 3.

♂: Medium size. *Colour* rufous-brown; head, body and elytra covered with a fine pubescence. *Head* a little wider than the pronotum, rounded; frontal rostrum a little wider than the first antennal joint, with parallel margins. Face brownish, shining; base of the mandibles a little shagreened beneath the eyes. *Pronotum* equally wide in front and behind, nearly cylindrical; anterior margin feebly concave, posterior one straight; disk rounded, strongly pubescent; lateral lobes high, with inferior margin slightly ascending posteriorly. *Abdomen* brown, pubescent. *Legs* rather short, very pubescent. Anterior tibiae perforated on their internal face only with a very small, round tympanum. Posterior femora striated on their external face, darkened at apex, with a yellowish ring before the darkened part. Posterior tibiae short, thick, blackish, armed with 4 spines and 4 or 5 basal denticles on each margin. *Elytra* short, very pubescent, with apical margin rounded; neuration rather confused, composed of three nearly straight chords, a diagonal vein, which is furcate, but no true mirror; anal field very short; 3 oblique veins and 3 other veins, emerging from the diagonal, parallel to the oblique ones; lateral field high, with 5 plain, parallel veins. Wings abortive.

*Length* of body 13 mm.; pronot. 3.2 mm.; post. fem. 10.5 mm.; post. tib. 6.5 mm.; elytra 5 mm.

This species is very remarkable for its abundant pubescence as well as by the peculiar elytral venation.

*Range*.—MALAYA: Selangor: Kuala Lumpur (type, Sel. M.).

## Genus HEMILANDREVA Chopard

1936. *Hemilandreva* Chopard, *Ceyl. J. Sc.*, (B) **20**, 38.

*Type*.—*Hemilandreva lamellipennis* Chopard (fig. 106).

*Range*.—Ceylon.

Close to *Landreva*, but differing in the male elytra which are very short, triangular, with a confused venation, presenting no distinct mirror. Anterior tibiae perforated on external face only.

134. ***Hemilandreva lamellipennis* Chopard**

1936. *Hemilandreva lamellipennis* Chopard, *Ceyl. J. Sc.*, (B) **20**, 38, fig. 6. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 549.

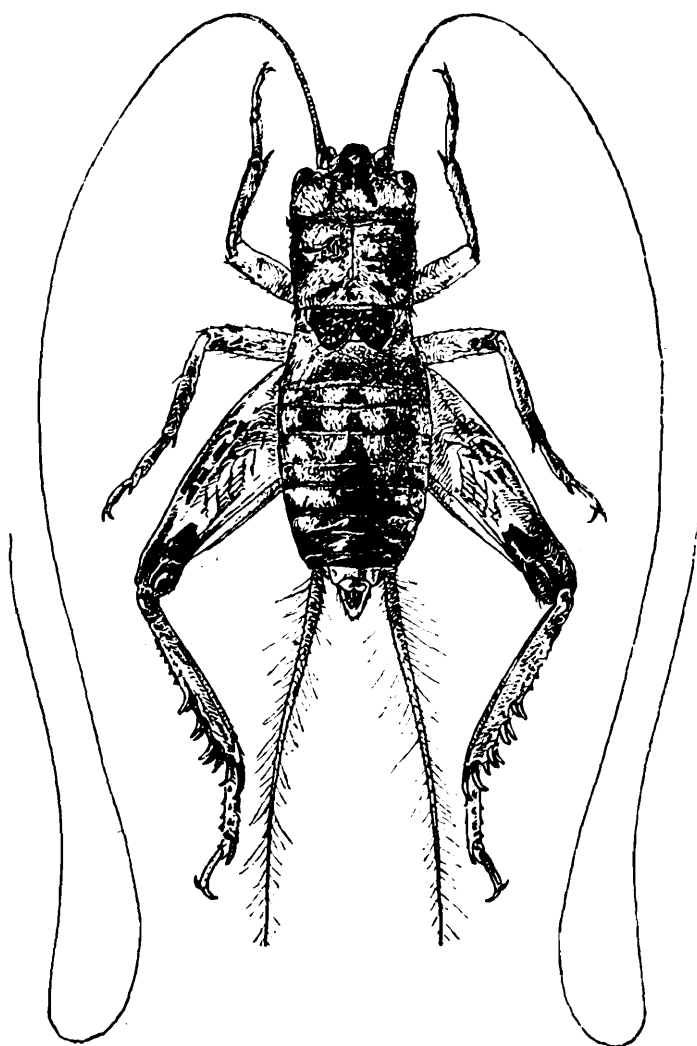


FIG. 106. *Hemilandreva lamellipennis* Chop., ♂ ( $\times 3.34$ ).

♂ : Size medium. Colouration rufous, varied with yellowish and brown, provided with a sparse yellowish pubescence (fig. 106). Head as wide as the pronotum in front; frontal rostrum as wide as the first antennal joint, with slightly converging margins, flat above. Face very short and wide,

brown; cheeks and base of the mandibles a little ridged. Palpi short, yellowish; 4th joint of maxillary palpi shorter than 3rd, 5th short, securiform. Antennae rufous. Eyes rather strongly projecting; ocelli very small, the anterior one nearly at extremity of the rostrum. *Pronotum* a little broader than long, with anterior margin slightly concave, posterior margin straight, sides feebly converging forwards and backwards; disk a little convex, brownish, pubescent, with the piriform impressions lighter, and two small oblique, tuberculiform protuberances near the posterior margin; lateral lobes brown, with yellowish anterior angle, inferior margin strongly ascending posteriorly. *Abdomen* rufous-brown, pubescent, with a large, smooth region beginning in a point on the second tergite and widening posteriorly towards the apex; the 4th, 5th and 6th tergites bear a tuft of long, yellow hairs near the middle; 10th tergite rufous, with strongly projecting angles. *Legs* short, pubescent, lighter than the body, a little mottled with brown. Anterior tibiae perforated on external face only, with a small almost round tympanum. *Legs*: Posterior femora short and thick; posterior tibiae armed with 4 spines and 4 or 5 basal denticles on each margin. *Elytra* very short, not exceeding the metanotum, but widely overlapping in the median line; dorsal field flat, thickened, forming a triangular lamella, with rounded apex; neuration quite confused, comprising only 3 or 4 weak, more or less anastomosing veins; lateral field merely represented by a small lobe, much shorter than the dorsal field, presenting two small veins.

*Length* of body 17 mm.; pronot. 3.5 mm.; post. fem. 10.5 mm.; post. tib. 6.5 mm.; elytra 2 mm.

A species very remarkable by the shape of the elytra which are completely dorsal, the lateral field being almost null, placed on the same level as the dorsal field which forms a thick, horizontal lamella.

*Range*.—CEYLON: Belihuloya; Mahaoya (type, Col. M.).

### Genus ODONTOGRYLLODES n. gen.

*Type*.—*Odontogryllodes brevicauda* n. sp.

General shape lengthened and rather slender. Anterior tibiae non-perforated. Posterior femora long; posterior tibiae very short, with spines thickened in the males; external apical spurs very short; superior and median internal spurs moderately long, subequal; posterior tarsi as long as the tibiae. Elytra short, without mirror in the male, very small, lateral in the female.

This genus resembles the *Landreva* by the posterior tibiae being serrulated at base; but the comparative length of the posterior femora and tibiae is quite similar to that of the *Brachytrypites* of the genus *Apterogryllus* known from Australia; and it also reminds one, by its long, almost cylindrical shape and by its thick antennae, of the genus *Apiotarsoides* of New Guinea and the Kei Islands.

### 135. *Odontogryllodes brevicauda* n. sp.

*Holotype*: Sumatra Lampongs, ♂; *allotype*: same locality, ♀ (Paris Museum).

♂: *Size* medium, narrow, long, almost cylindrical. *Colouration* fulvous-brown, pubescent. *Head* rather big, but not wider than the pronotum; rufous, without any ornamentation; frontal rostrum a little wider than the first antennal joint, sloping, very finely shagreened. Face rather short, smooth. Palpi moderately long, yellowish; 4th joint of the maxillary palpi shorter than 3rd, 5th a little longer, feebly enlarged at apex, the superior margin truncated on two-thirds of its length. Antennae rather strong, brown. *Pronotum* as long as wide, with anterior and posterior margins straight, sides parallel; disk much rounded, feebly shining, pubescent; lateral lobes high with inferior margin strongly ascending posteriorly, anterior angle rather widely yellowish. *Metanotum* with a large median pit. *Abdomen* almost cylindrical. *Legs* short, fulvous. Anterior and median femora strong, compressed; tibiae cylindrical, the anterior ones unperforated; metatarsi short, compressed; 3rd joint of the tarsi very long. Posterior femora long and stout, presenting near the apex a rufous-brown spot; posterior tibiae short and strong, bearing 4 denticles and 4 short and strong spines on the external margin, 3 denticles and 4 spines on the internal one, these inner spines as short as those on the external margin but thickened at base; external apical spurs very short especially the superior, the inferior and especially the median wide and thick; infero-internal spur very small, median a little longer, pubescent, the superior one a little shorter, similar to the spines but not dilated at base; posterior metatarsi rather long, feebly compressed, with 4 denticles on each margin. *Elytra* very short, contiguous on the median line, with straight internal and apical margins, internal angle subacute; dorsal field with 5 plain, longitudinal veins, transverse veinlets indistinct; lateral field high, with much rounded inferior margin, presenting 5 curved, regularly spaced veins; *Sc.* bearing one branch. No wings.

♀: General shape as in the male. *Elytra* quite lateral, reduced to small lobes with dorsal field almost absent; internal margin a little concave; lateral field with 3 veins. *Ovipositor* very short, rather thick, feebly curved upwards; apical valves wide, acute, the superior ones very flat, with feebly denticulated margins, the inferior smooth, a little shorter than the superior ones.

*Length* of body 13 mm.; pronot. 3 mm.; post. fem. 8 mm.; post. tib. 4.5 mm.; elytra ♂ 2.1 mm., ♀ 0.6 mm.; ovipositor 5 mm.

136. ***Odontogrylloides latus* n. sp.**

(Fig. 107)

*Holotype*: Singapore, ♀ (Paris Museum).

Close to the type of the genus, *O. brevicauda*, but general shape shorter and wider. *Colouration* light rufous; very feebly

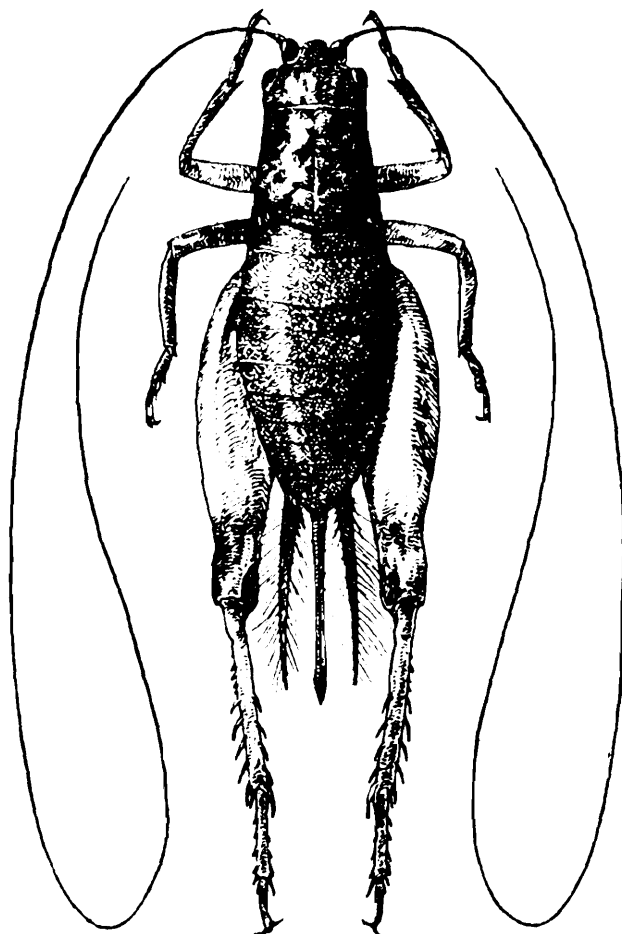


FIG. 107. *Odontogrylloides latus* n. sp. ♀ ( $\times 3.7$ ).

pubescent. *Head* as wide as pronotum, convex above; fronta rostrum very wide. Face yellow. Antennae thick, rufous, with very large first joint. Palpi yellowish; 4th joint of the maxillary palpi shorter than 3rd, 5th longer, feebly securiform. Eyes rounded, feebly projecting; ocelli very small. *Pronotum* as broad as long, very feebly narrowing in front, with almost straight anterior and posterior margins, disk convex, lateral lobes with inferior margin rather strongly ascending posteriorly. *Abdomen* a little depressed and dilated in the middle; subgenital plate small, a little truncated at apex. *Legs* short, of the same colour as the body. Anterior tibiae unperforated; 3rd joint of the anterior and median tarsi much longer than the metatarsus. Posterior femora thick, a little darkened at apex; posterior tibiae short, armed on each margin with 4 short and strong spines; before the spines, the internal margin presents 4-5 denticles, the external 5-6; supero-external apical spur smaller than the last spine; median and inferior ones a little longer and stronger; median and superior spurs rather strong but short; metatarsi long, bearing 3 internal, 4 external denticles, besides the apical spurs. *Elytra* very short, quite lateral, rounded, presenting 5 veins, 2 in the dorsal field and 3 in the lateral field. *Ovipositor* short, straight, with superior valves lanceolate, acute, flat above, with external margin rather strongly denticulated; inferior valves with parallel, smooth margins, apex slightly obliquely truncated.

*Length* of body 12 mm.; post. fem. 8 mm.; post. tib. 5 mm.; clytra 0.5 mm.; ovipositor 4.2 mm.

### Subfamily NEMOBIINAE

The *Nemobiinae* are small Gryllids, which present very long, movable spines on the posterior tibiae; the body, more or less pubescent, presents always, mixed in this pubescence, long black bristles. Elytra of the males with very reduced apical field, mirror posteriorly divided into several cells; one oblique vein only. Ovipositor of the females with apical valves feebly enlarged, their margins more or less strongly denticulated.

The *Nemobiinae* are wandering insects which never burrow in the soil to shelter; they live on the ground, under dead leaves and are very hygrophilous; they are often found in the neighbourhood of streams or ponds and some species, willingly entering water, are almost aquatic.

*Key to the genera of subfamily NEMOBIINAE*

- |   |  |   |   |
|---|--|---|---|
| 1 | Elytra and wings present in both sexes.              |   | 2 |
|   | Both sexes completely apterous.                      | <i>Scottiola</i> Uvar. p. 177                 |   |
| 2 | Elytra of male provided with a distinct mirror.      |   | 3 |
|   | Elytral venation similar in both sexes               |   | 4 |
| 3 | Apical spurs of the posterior tibiae 3 on each side. | <i>Pteronemobius</i> Jac. and Bianchi, p. 157 |   |
|   | Five apical spurs only, 3 external, 2 internal.      | <i>Speonemobius</i> Chop., p. 169             |   |
| 4 | Legs very long.                                      | <i>Paranemobius</i> Sauss., p. 174            |   |
|   | Legs short.  | <i>Homonemobius</i> Chop., p. 172             |   |

Genus *PTERONEMOBIUS* Jacobson and Bianchi

1905. *Pteronemobius* Jacobson and Bianchi, *Orthoptères et Neuroptères de l'Empire russe et des régions voisines*. Saint Petersbourg, 10, 952, 25 plates.

*Type*.—*Nemobius tartarus* Saussure.

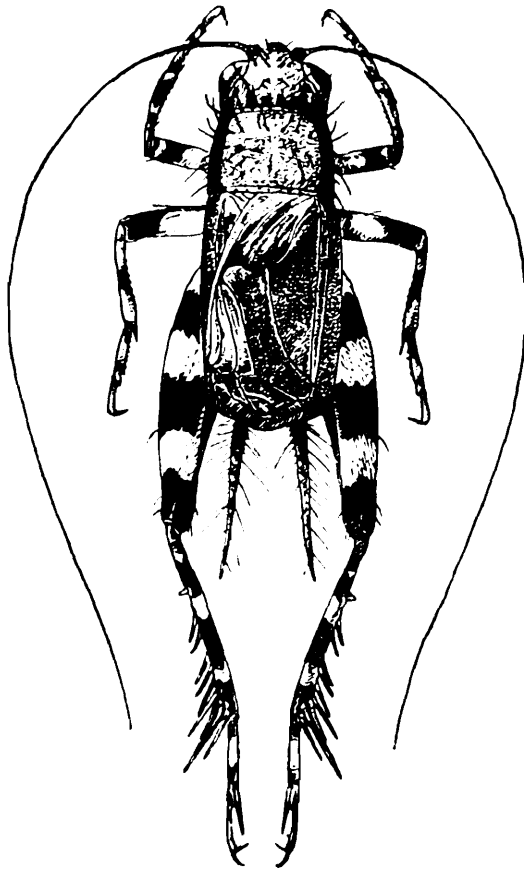


FIG. 108. *Pteronemobius fascipes* Walk., ♂ (× 6·8).



*Range*.—Cosmopolitan.

This genus is characterized by the armature of the posterior tibiae of the males, which are always provided with 4 internal spines, the first of which is very short, tuberculiform and, probably, glandular; it seems to play a role during copulation.

*Key to the species of PTERONEMOBIUS*

- |   |  |   |   |
|---|--|---|---|
| 1 | Elytra presenting false veins between the principal veins.   | <i>strigipennis</i> (Chop.),<br>p. 168  | 2 |
|   | Elytra with normal venation . . . .  |   | 2 |
| 2 | Posterior femora adorned with blackish bands. . . .  |   | 3 |
|   | Posterior femora unicolorous. . .  |   | 4 |
| 3 | Maxillary palpi very dark at base, with 4th and 5th joints nearly white; lateral lobes of pronotum blackish.   | <i>fuscipes</i> (Walk.), p. 164         |   |
|   | Maxillary palpi testaceous, a little darkened at apex; lateral lobes of pronotum for the most part rufo-testaceous. . . . .  | <i>csikii</i> (Bol.), p. 165            |   |
| 4 | Lateral lobes of pronotum and lateral field of elytra blackish, contrasting with the upper part which is testaceous. . . .   | <i>taprobanensis</i> (Walk.),<br>p. 163 |   |
|   | Lateral lobes of pronotum and lateral field of elytra of the same colour as the upper part. . . .  |   | 5 |
| 5 | Elytra relatively short and wings very long (in the macropterous forms); head more or less dark brown, elytra yellowish. . . .   |   | 6 |
|   | Elytra unusually extending to the apex of abdomen; wings (in the macropterous forms) relatively shorter; colouration of the elytra not very different from that of the pronotum. . . . . |   | 7 |
| 6 | Antennae very pubescent; 5th joint of maxillary palpi very long; margins of apical valves of ovipositor finely denticulated; elytral veins of female very regular, almost straight. . .  | <i>pilicornis</i> n. sp., p. 167        |   |
|   | Antennae feebly pubescent; 5th joint of maxillary palpi shorter; margins of apical valves of ovipositor smooth; elytral veins oblique.   | <i>bicolor</i> (Sauss.), p. 166         |   |
| 7 | Size larger (7–8 mm.); ovipositor longer (5 mm.) and straighter.   | <i>indicus</i> (Walk.), p. 159          |   |
|   | Size smaller (4–7 mm.); ovipositor shorter (2.5–3 mm.), gently curved. .   |   | 8 |
| 8 | General shape relatively short and wide; the two last joints of maxillary palpi white.   | <i>panteli</i> n. sp., p. 167           |   |

- General shape more elongated; the two last joints of maxillary palpi concolorous. . . . . 9
- 9 Posterior tibiae with 3 external spines. . . . . 10
- Posterior tibiae with 4 spines on each margin. . . . . *concolor* (Walk.), p. 160
- 10 Posterior tibiae with 3 external, 4 internal spines. . . . . *montanus* Chop., p. 161
- Posterior tibiae with 3 spines on each margin in the female sex. . . . . 11
- 11 Body and legs brown. . . . . *novarae* (Sauss.), p. 162
- Body blackish-brown with light rufous legs. . . . . *rufipes* n. sp., p. 163

### 137 *Pteronemobius indicus* (Walker)

(Fig. 109)

1869. *Nemobius indicus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 58 (♀). Saussure, 1877, *Mém. Soc. Genève*, 25, 67.
1871. *Nemobius vagus* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 10 (♂).
1925. *Pteronemobius vagus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 507. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 134. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 43, fig. 7e-f. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

*Size* large for the genus. *Colouration* uniformly pale testaceous. *Head* with 4 feebly marked pale lines. *Legs*: Posterior tibiae armed with 4 spines on each margin, in both sexes, the first internal of the male tuberculiform; infero-apical spurs very unequal.

♂: *Elytra* extending to the apex of abdomen; mirror divided posteriorly into two cells. Wings very long, whitish. *Legs*: Last internal spine of the posterior tibiae feebly curved and swollen at base. *Genitalia* forming a forceps with double branches.

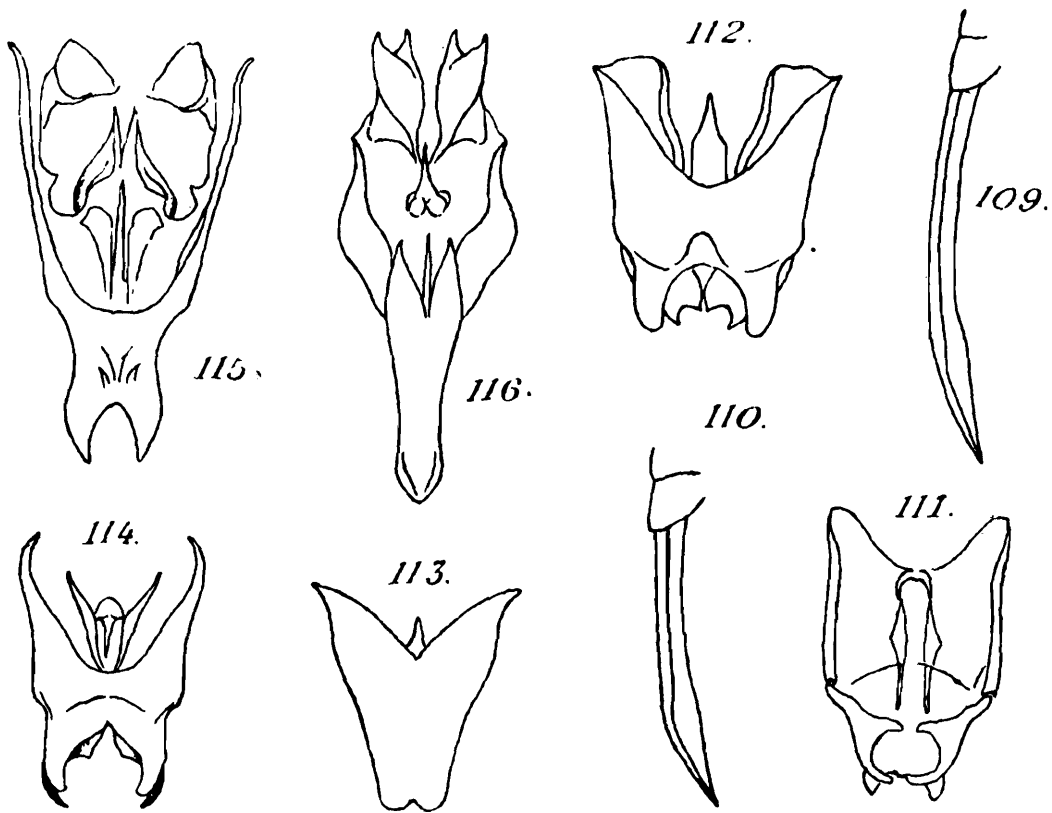
♀: *Elytra* and wings as long as in the male; dorsal field of elytra presenting 4 feebly oblique veins, the second being furcate a little before the apex. *Ovipositor* long, straight, with apical valves very narrow, their superior margin very finely denticulated (fig. 109).

*Length* of body 7.5–8.5 mm.; length with wings 12–14 mm.; pronot. 1.5 mm.; post. fem. 5.2–6 mm.; elytra 4–5.5 mm.; ovipositor 5 mm.

*Range*.—INDIA: Bombay (type of *vagus*, B.M.). Madras: Coimbatore (Phil. M.). Assam: Ledo (Phil. M.). CEYLON: Battaramulla; Balangoda; Colombo; Peradeniya; Barbaryn Id. (Col. M.); numerous localities (Sandrasagara). BURMA:

Rangoon (P.M.). MALAYA: Selangor: Kuala Lumpur. Pahang: Kuala Tahan (Sel. M.); Malacca (P.M.).

This species seems widespread throughout tropical Asia, Indo-China, Sumatra and Mentawai Islands.



FIGS. 109 to 116. 109. ovipositor of *Pteronemobius indicus*. 110. *id.*, of *Pt. concolor*. 111. genitalia of *Pt. fascipes*, inferior part. 112. *id.*, of *Pt. panteli*. 113. *id.*, of *Speonemobius decolyi*, from above. 114. *id.*, of *Homonemobius monomorphus*. 115. *id.*, of *Paranemobius pictus*. 116. *id.*, of *P. vicinus*.

### 138. *Pteronemobius concolor* (Walker)

(Fig. 110)

- 1871. *Eneoptera concolor* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 10.
- 1877. *Nemobius ceylonicus* Saussure, *Mém. Soc. Genève*, 25, 86.
- 1918. *Pteronemobius birmanus* Chopard, *Ann. Soc. ent. Fr.*, 86 (1817), 556, fig. 84. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 42, fig. 7d. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 550.
- 1924. *Pteronemobius gravelyi* Chopard, *Rec. Ind. Mus.*, 26, 183, figs. 21-23.
- 1925. *Pteronemobius heydeni ceylonicus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 507.

1931. *Pteronemobius concolor* Chopard, *Bull. Raffles Mus.*, No. 6, 134. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 42, figs. 7a, c. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 550.

Very similar to the preceding, but smaller; armature of the posterior tibiae and mirror of the male quite similar in both species. Male genitalia of the same type, but branches of the forceps stouter and less curved. In the female, the ovipositor is shorter and a little curved, the apical valves being finely crenulated as in *indicus* (fig. 110). The colouration is typically testaceous, almost unicolorous but is rather variable; certain specimens, which seem more common in the mountains, are much darker in the general colour, with occiput presenting short light lines, pronotum with two light lateral bands and the elytra with a humeral yellowish band.

*Length* of body 6–7.5 mm.; length with wings 10–11.5 mm.; post. fem. 4–4.5 mm.; elytra 3.5–4.5 mm.; ovipositor 2.5–3 mm.

This species is almost always macropterous; the microppterous form seems scarce and is represented by *ceylonicus* Sauss.; in that form, the elytra of the female are shorter than in the type.

*Range*.—INDIA: Madras: Coimbatore (Phil. M.). Bombay: Salsette Island (B.M.). West Bengal: Diamond Harbour (B.M.); Calcutta (P.M.). Orissa: Barkuda Island; Chilka Lake (type of *gravellyi*, I.M.). Assam: Ledo (Phil. M.). CEYLON: Colombo; Trincomalee; Battaramulla; Madola; Marai Villu (Col. M.); Peradeniya (V.M.); Ratnapura (type of *ceylonicus*, Col. M.); numerous localities (Sandrasagara). BURMA: Nam Tallai Valley; Rangoon; Amherst Dist.; Kawkaik (B.M.); Senmigion (type of *birmanus*, Go. M.). MALAYA: Selangor: Kuala Lumpur. Perak: Batang Padang: Jor Camp (Sel. M.).

### 139. *Pteronemobius montanus* Chopard

1933. *Pteronemobius montanus* Chopard, *Stylops*, 2, 117.

♀: *Size* very small. *Colour* brown. *Head* large, as wide as pronotum, light brown with feebly marked dark bands on the occiput. Palpi testaceous, with darker last joint. *Pronotum* transverse with anterior and posterior margins straight, sides parallel; disk testaceous-brown, with long black bristles; lateral lobes brown. *Abdomen* brown above, yellowish beneath. *Legs* brown. Posterior tibiae armed with 4 internal, 3 external spines, the first internal very small; apical

spurs long, the two inferior ones unequal in length. *Elytra* extending nearly to the apex of abdomen, brown, shining; dorsal field with 4 rather regular, almost parallel veins; transverse veinlets very scarce and feebly marked; lateral field with 4 plain, regularly distant veins. Wings short. *Ovipositor* rather long and slender, with apical valves long, narrow, very feebly denticulated.

*Length* of body 4 mm.; post. fem. 3.2 mm.; ovipositor 2 mm.

This species looks very like micropterous specimens of *concolor*, but it differs from it by the posterior tibiae bearing three external spines only. A single male from Ledo, which seems referable to this species, presents *elytra* somewhat thickened towards the apex so that the mirror is nearly rubbed out; the *genitalia* are more strongly curved at apex than those of *concolor*. Should these features prove constant, they would be of value to characterize the species.

*Range*.—INDIA: West Bengal: Kalimpong, alt. 4,000 ft. (type, B.M.). Assam: Ledo (Phil. M.). Sikkim. UPPER BURMA: Nam Tamai Valley (B.M.).

#### 140. *Pteronemobius novarae* (Saussure)

1877. *Nemobius novarae* Saussure, *Mém. Soc. Genève*, 25, 83.

*Size* very small. *Colour* brown. *Pronotum* narrowing a little in front. *Legs* brown, with a few small yellowish spots. Posterior tibiae armed with 4 internal, 3 external spines in the male, 3 on each margin in the female. *Elytra* extending to the apex of abdomen, light brown with a wide humeral yellowish band. Wings very long.

♂: Mirror divided into two unequal parts by an oblique, longitudinal vein, the two first chords lengthily united at base; apical field almost null.

♀: Dorsal field of the *elytra* presenting 4 almost longitudinal veins, the second being furcate, the two internal united at apex. *Ovipositor* rather short, almost straight, with very large apical valves, occupying almost half the total length, lanceolate with superior margin very feebly denticulated.

*Length* of body 4–4.2 mm.; length with wings 7.5 mm.; post. fem. 3 mm.; elytra 2.5–2.6 mm.; ovipositor 2 mm.

*Range*.—INDIA: Central Provinces (Madhya Pradesh); Nerbudda Survey (B.M.). MALAYA: Kuala Lumpur (P.M.). SIAM: Bangkok (P.M.). JAVA (type, V.M.).

# 141. *Pteronemobius rufipes* n. sp.

*Holotype*: Darjeeling, Sureil (Paris Museum), ♀.

*Size* very small. *Colour* blackish-brown with light rufous legs. *Head* blackish, rounded. Antennae pale testaceous; 4th and 5th joints of maxillary palpi white. *Pronotum* wider than long, with straight anterior and posterior margins; lateral lobes concolorous, with feebly sinuated inferior margin and rounded angles. *Abdomen* blackish. *Legs* much lighter than the body, uniformly rufo-testaceous. Posterior femora rather short and stout; posterior tibiae armed with 3 long spines on each margin; infero-apical spurs equal in length. *Elytra* extending almost to the apex of abdomen, black, shining; dorsal field with almost parallel veins, scarce transverse veinlets; lateral field of the same colour as the disk, with 3 parallel veins. No wings. *Ovipositor* short, almost straight, with apical valves lanceolate, feebly denticulated on the superior margin.

*Length* of body 5 mm.; post. fem. 3.5 mm.; ovipositor 2.2 mm.

Close to the preceding but quite distinct in its colouration.

# 142. *Pteronemobius taprobanensis* (Walker)

- 1869. *Trigonidium taprobanense* Walker, *Cat. Derm Salt. Br. M.*, 1, 102.
- 1871. *Eneoptera lateralis* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 11.
- 1877. *Nemobius infernalis* Saussure, *Mém. Soc. Genève*, 25, 83 (micropterous form).
- 1877. *Nemobius javanus* Saussure, loc. cit., 85 (macropterous form).
- 1877. *Nemobius taprobanensis* Saussure, *Mém. Soc. Genève*, 25, 87.
- 1924. *Pteronemobius javanus* Chopard, *Rec. Ind. Mus.*, 26, 182.
- 1925. *Pteronemobius taprobanensis* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 507. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 134. Chopard, 1933, *Rev. Suisse Zool.*, 40, 165. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 285. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 43. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 551.

Easy to recognize by its colouration which is greyish-testaceous above, dark brown on the sides of the pronotum and the lateral field of the elytra. *Head* fulvous above with four pale lines, more or less distinct, on the occiput. Palpi pale testaceous-brown, the last joint of the maxillary ones almost black. *Pronotum* feebly widening posteriorly, chiefly in the macropterous form; lateral lobes dark brown, with a

rather broad yellowish band along the inferior margin. *Elytra* extending to the apex of abdomen, more or less spotted with brown above. *Legs* testaceous-brown. Posterior tibiae armed with 3 external and 4 internal spines in the male, 3 on each margin in the female; these spines are rather long, brown with yellow base and apex.

♂: *Elytral* mirror divided into two unequal parts by an oblique vein ending almost in the middle of the antero-internal margin.

♀: *Ovipositor* almost straight, with apical valves scarcely wider than the stem, with almost smooth margins.

*Length* of body 5-5.3 mm.; length with wings (macropterous form) 9 mm.; pronot. 1.3 mm.; post. fem. 4 mm.; elytra 3-3.1 mm.; ovipositor 2.2-3.2 mm.

*Range*.—INDIA: Madras: Nilgiris; Coonoor (G.M.). Bombay (type of *lateralis*, B.M.). West Bengal: Calcutta (P.M.); Darjeeling (P.M.). Mysore: Nedungadu (P.M.). Orissa: Barkuda Island (I.M.). Assam: Chabua; Doom Dooma (U.S.N.M.); Ledo (Phil. M.). EAST PAKISTAN: Dacca (B.M.). CEYLON: Colombo; Bandarawela; Ratnapura; Labugama (Col. M.); Peradeniya (V.M.); numerous localities (Sandrasagara). MALAYA: Kuala Lumpur; Gombak Valley. Perak (Sel. M.). BURMA: Shingbuiyang (Phil. M.).

Widespread in India, Indo-China, Burma, Java (types of *javanus* and *infernalis*), Sumatra.

### 143. *Pteronemobius fascipes* (Walker)

(Figs. 108, 111)

- 1869. *Eneoptera fascipes* Walker, *Cat. Derm. Salt. Br. M.*, 1, 67 (macropterous ♂).
- 1871. *Eneoptera alboatra* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 11 (brachypterous ♂ and ♀).
- 1877. *Nemobius histrio* Saussure, *Mém. Soc. Genève*, 25, 95 (brachypterous ♂). Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 993.
- 1893. *Nemobius nigrosignatus* Brunner, *Ann. Mus. Genova*, 33, 196, pl. 6, fig. 67.
- 1924. *Pteronemobius histrio* Chopard, *Rec. Ind. Mus.*, 26, 182, figs. 18-20.
- 1925. *Pteronemobius ater* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 507.
- 1931. *Pteronemobius fascipes* Chopard, *Bull. Raffles Mus.*, No. 6, 134. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 45. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 551.

*Head* blackish with four pale lines on the occiput. *Palpi* blackish at base, with 4th and 5th joints white. *Pronotum*

brownish above, with lateral lobes blackish-brown. *Abdomen* blackish with yellowish extremity. *Colouration* of the *legs* very characteristic; coxae whitish; anterior and median femora whitish in their basal half, brownish in the apical half; tibiae rufous-brown with pale base. Posterior femora testaceous adorned with three blackish bands, the first of which does not extend to the inferior margin, the third covering the extremity; posterior tibiae brown annulated with whitish; spines brown with base and apex yellow; their number being 3 external and 4 internal in the male, 3 on each margin in the female.

♂: *Elytral* mirror strongly transverse, presenting two cells in its apical part, the internal extending only to the middle of the internal margin. *Genitalia* with superior part narrowing and rounded at apex, which is feebly notched; inferior parts wholly covered, forming two weak curved teeth (fig. 111).

♀: *Elytra* extending little farther than the middle of abdomen (brachypterous form) or a little longer (macropterous), blackish with yellowish base. *Ovipositor* rather long, with apical valves lanceolate, finely denticulated on the superior margins.

*Length* of body 5 mm.; length with wings (macropterous form) 8.5 mm.; post. fem. 3.1 mm.; ovipositor 2 mm.

*Range*.—INDIA: Mysore: Nedungadu (P.M.); Tindivanam; Shimoga (Phil. M.). Bombay (type of *alboatra*, B.M.): Salsette Island (B.M.). Madras: Trichinopoly (Bolivar). Orissa: Barkuda Island (P.M.). West Bengal: Calcutta; Kalimpong (B.M.); Malir (B.M.); Kurseong (B.M.). Bihar: Madhupur. Assam: Chabua (U.S.N.M.); Ledo (Phil. M.). Sikkim: Rongli Chu. CEYLON: Colombo (V.M.); numerous localities (Sandrasagara). MALAYA: Singapore (P.M.). JAVA (type of *histris*). BURMA: Carin Cheba (type of *nigrosignatus*, Go. M.).

#### 144. *Pteronemobius csikii* (Bolivar)

1901. *Nemobius csikii* Bolivar, *Zichy zool. Ergebn.*, 2, 248.

1925. *Pteronemobius csikii* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 507, fig. 1. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 45. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 551.

Very similar to the preceding, in that it exhibits the same size and type of colouration; but it differs from it in having the 4th and 5th joints of maxillary palpi testaceous-brownish at apex; the lateral lobes of *pronotum* partly rufo-testaceous; the posterior femora marked with brown at base. In the



female, the *ovipositor* is longer and more strongly denticulate at apex and the posterior tibiae present 4 internal spines in both sexes.

*Length* of body 7 mm.; post. fem. 4–5 mm.; elytra 3.2 mm.; ovipositor 4 mm.

*Range*.—INDIA: Bihar: Madhupur (P.M.). Assam: Mangaldai; Bhutan Frontier (P.M.). Mysore: Shimoga; Nedungadu. Madras: Coimbatore (Phil. M.). CEYLON: Colombo: Trincomalee; Peradeniya (Col. M.). BURMA: Rangoon (U.S.N.M.). CHINA: Widely distributed but much more scarce than *fascipes*.

#### 145. *Pteronemobius bicolor* (Saussure)

1877. *Nemobius bicolor* Saussure, *Mém. Soc. Genève*, **25**, 98, pl. 11 (VII), figs. 5, 6.  
 1935. *Pteronemobius bicolor* Chopard, *Ann. Mag. nat. Hist.*, (10) **16**, 285. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 45. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 551.

*Colour* blackish-brown, furnished with black hairs. *Head* very small; frontal rostrum very narrow. *Antennae* brown at base, whitish towards the apex. *Palpi* brown. *Legs* brown. Posterior tibiae armed with 3 external and 4 internal spines in the male, 3 spines on each margin in the female; in the male, the first internal spine is very small, hooked; posterior metatarsi very long. *Elytra* extending to the middle of abdomen, yellowish. *Wings* very long, almost twice as long as the elytra.

♂: *Elytral* mirror very small, more or less lost in the apical venation; chords feebly curved.

♀: *Elytra* presenting 4 almost longitudinal veins in the dorsal field; transverse veinlets scarce; lateral field with 3 veins and the *Sc.* plain. *Ovipositor* very short, with large, lanceolate apical valves.

This species is distinguished by its dark brown colouration with yellowish elytra; these are relatively short and the wings very long.

*Length* of body 7 mm; length with wings 12 mm.; pronot. 1.3 mm.; post. fem. 4 mm.; elytra 3.4 mm.; ovipositor 3 mm.

*Range*.—INDIA: Central India (Madhya Pradesh) (type, G.M., Saussure's collection): Mandola, Nerbudda Survey (B.M.). Mysore: Nedungadu; Shimoga (P.M.). Madras: Coimbatore (Phil. M.); Trichinopoly (Phil. M.). West Bengal: Calcutta (P.M.). Bihar: Siripur; Pusa (B.M.). CEYLON: Marai Villu (Col. M.). BURMA: Tenasserim (V.M.); Toungoo (Phil. M.). SIAM.

**146. Pteronemobius pilicornis n. sp.**

*Holotype* : Burma: Toungoo (A. V. B. Crumb), ♀ (Academy of Natural Sciences, Philadelphia).

General aspect similar to the preceding species. *Colour* of head and pronotum dark brown, elytra much lighter. *Head* somewhat flattened above; frontal rostrum narrow, presenting two rows of black bristles. Face dark brown in its superior part, very pale yellow from the clypeus to the apex of the labrum, finely pubescent. Antennae rather thick, blackish at base rapidly becoming whitish, each joint covered with a very abundant pubescence. Palpi dark brown; 5th joint of the maxillary ones very long, feebly enlarged at top. *Pronotum* uniformly dark brown. *Abdomen* dark brown above, much lighter beneath. *Legs* : Anterior and median femora dark brown; tibiae shorter than the femora, testaceous, the anterior ones perforated with a rather large external tympanum; tarsi nearly as long as the femora, very pubescent. Posterior legs wanting. *Elytra* extending to the apex of 6th abdominal tergite, yellowish-brown, translucent; veins of the dorsal field almost straight, regularly spaced, 5 in number, all of them plain; transverse veinlets scarce; lateral field of the same colour as the dorsal field, presenting 4 regularly distant veins; *Sc.* plain. Wings very long. *Ovipositor* short, straight, with apical valves widely lanceolate, with finely denticulated margins.

*Length* of body 6 mm.; length with wings 11 mm.; ovipositor 2 mm.

Differing from *bicolor* in the strongly pubescent antennae, the very long last joint of maxillary palpi, the elytral veins very regular and almost straight and the finely denticulated apical valves of the ovipositor.

**147. Pteronemobius panteli n. sp.**

(Fig. 112)

*Holotype* : West Bengal: Kurseong, ♂; *allotype* : same locality, ♀ (Pantel's collection, Paris Museum).

General shape rather short and stout. *Colouration* uniformly brown; shining, almost glabrous except for the long bristles characteristic of the *Nemobiinae*. *Head* big, rounded; vertex sloping; frontal rostrum a little wider than the first antennal joint. Eyes rounded, feebly projecting; ocelli relatively big, yellow. Antennae brown. Maxillary palpi brown with the two last joints white. *Pronotum* broad, with parallel margins. *Legs* rather short, femora brown, tibiae and tarsi lighter.

♂: *Legs*: Posterior tibiae armed with 3 external and 4 internal spines, the first tuberculiform, the 4th strongly swollen at base; inferior apical spurs equal. *Elytra* extending to the apex of abdomen; mirror divided into two almost equal parts by an oblique vein; apical field rather large, but its reticulation scarcely visible; diagonal vein long, feebly curved at base; chords straight, parallel. No wings. *Genitalia* of the same type as *birmanus*, but with rounded tops of the superior part (fig. 112).

♀: *Legs*: Posterior tibiae armed with 3 spines on each margin. *Elytra* a little shorter than the abdomen, truncated at apex; dorsal field with 4 parallel, almost equidistant veins, the 2nd furcate near the apex, the 3rd and 4th united a little before the apex. *Ovipositor* rather short, feebly curved; apical valves large, lanceolate, strongly carinated along the median line, with finely denticulated superior margins. No wings.

*Length* of body 5 mm.; pronot. 1.2 mm.; post. fem. 4 mm.; elytra ♂ 3.4 mm., ♀ 2.2 mm.; ovipositor 2.5 mm.

This species is distinguished by its general shape, rather stout and wide, and by the white fourth and fifth joints of the maxillary palpi.

#### 148. *Pteronemobius* (?) *strigipennis* (Chopard)

1928. *Nemobius* (?) *strigipennis* Chopard, *Rec. Ind. Mus.*, 30, 4, fig. 5.

♀: *Size* small. *Head* brown, with forehead somewhat flattened, adorned with seven yellow stripes, extending on occiput and vertex, two behind each eye, one behind the antennal socket, one in the middle line. Face rufous. Maxillary palpi with first three joints brown, 4th nearly white, short, 5th long, triangular, whitish in its basal half, apex brownish. *Pronotum* blackish-brown, shining, adorned with small yellow stripes and spots; lateral lobes brown. *Abdomen* brown. *Cerci* stout, brownish. Anterior and median *legs* rather short; femora brownish with a few light spots, bearing long bristles; tibiae and tarsi testaceous; anterior tibiae perforated on their outer side. Posterior legs wanting. *Elytra* extending almost to the extremity of abdomen, dark brown; dorsal field presenting four longitudinal veins, separated by false veins as in certain *Trigonidiidae*; lateral field dark with four parallel veins. *Ovipositor* short, straight, with apical valves long, acute and very feebly denticulated.

*Length* of body 5.5 mm.; ovipositor 3 mm.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Soom, alt. 4,000–5,000 ft. (type, I.M.).

This small species differs from all the other *Pteronemobius* species by the elytral venation. The posterior legs being absent in the only specimen known, it is difficult to ascertain its true relationship to this genus.

## Genus SPEONEMOBIUS Chopard

1924. *Speonemobius* Chopard, *Rec. Ind. Mus.*, 26, 85.

*Type*.—*Speonemobius decoloratus* Chopard.

*Range*.—Assam, Darjeeling.

Allied to *Pteronemobius*. Head big, rounded. Legs relatively long. Anterior tibiae with a large, oval, external tympanum. Posterior tibiae armed with 3 external and 2 internal spines, 5 apical spurs. Elytra of male as in *Pteronemobius*.

### Key to the species of SPEONEMOBIUS

- |   |  |                                   |
|---|--|-----------------------------------|
| 1 | Larger size; general colour whitish with elytra darker; legs relatively longer.                  | <i>decoloratus</i> Chop., p. 169  |
|   | Smaller (4.5–6 mm.); general colour darker; legs relatively shorter.                             | 2                                 |
| 2 | General shape rather short and broad; larger (6.2 mm.); head rufo-testaceous with brown occiput. | <i>decolyi</i> n. sp., p. 170     |
|   | General shape rather long and slender; smaller (4.5 mm.); head testaceous brown above.           | <i>punctifrons</i> n. sp., p. 171 |

## 149. *Speonemobius decoloratus* Chopard

1924. *Speonemobius decoloratus* Chopard, *Rec. Ind. Mus.*, 26, 85, pl. 4, figs. 14–17.

*Size and general aspect* as in *Pteronemobius*. *Head* relatively big, whitish. Face adorned with two narrow indistinct, brown stripes and a brown spot beneath each eye. Palpi wholly white, the last joint of the maxillary ones showing only a small greyish stripe inferiorly; this last joint is large, triangular. Antennae pale testaceous, with a certain number of narrow brown rings. *Pronotum* wider than long, whitish with two piriform brownish spots; posterior margin of the lateral lobes blackish. *Abdomen* pale testaceous, with sides brownish, very pubescent; subgenital plate short, blackish. *Cerci* testaceous. *Legs* relatively long, mostly whitish. Anterior and median tibiae greyish, darkened at apex; tarsi long,

base of metatarsus, second joint and apex of third joint blackish. Posterior femora moderately dilated, light testaceous with a few short brown stripes on external face; posterior tibiae greyish, darkened at apex and at base of each spine, armed with 5 spines and 5 apical spurs; the spines are whitish, 2 internal and 3 external ones, the latter of moderate length, subequal, the former long and slender, inserted between the 2nd and 3rd external and between that one and the apex; 3 external spurs, the inferior very tiny and short, the other two rather short but the median longer than the superior one; the two internal spurs are long, gently curved, whitish, the superior somewhat the longer; tarsi long, pale testaceous, with apex of metatarsus, 2nd joint and apex of 3rd joint blackish; metatarsus very long. *Elytra* a little shorter than the abdomen, rounded at apex, with a blackish ground colour, the whitish veins and posterior margin standing out in relief on the background; diagonal vein rather short, straight; chords curved, regularly distant, the internal one united to the mirror by a veinlet; mirror rather large, divided into a very large internal cell and two small external ones; apical field very short, formed of a few indistinct cells; lateral field black except the whitish humeral band, presenting 3 plain, parallel veins, besides the *Sc*.

*Length* of body 9 mm.; pronot. 1.6 mm.; ant. fem. 3 mm.; post. fem. 7.5 mm.; post. tib. 6 mm.; elytra 5 mm.

*Range*.—INDIA: Assam: Garo Hills; at entrance of Siju Cave (type, I.M.).

Although found at the entrance of the cave, this species is remarkably decolourized, but it does not seem to be a true cave-dweller.

### 150. *Speonemobius decolyi* n. sp.

(Fig. 113)

*Holotype*: Assam, Pedang (P. Decoly), ♂, Pantel's collection in Paris Museum.

General shape rather short and broad. *Head* big, round, rufo-testaceous with brown occiput; frontal rostrum a little wider than the first antennal joint. Face rather dark brown, shining. Antennae yellowish with feebly marked and widely distant brown rings. Palpi testaceous with 1st and 2nd joints and base of the third brown; 4th joint much shorter than 3rd and 5th; the latter feebly enlarged at apex. *Pronotum* much broader than long, feebly narrowing in front, with straight anterior and posterior

margins; disk light testaceous, with long, brown bristles; lateral lobes with inferior margin almost straight, presenting the same colour as the disk, with dark brown posterior angle. *Abdomen* blackish with posterior margin of the tergites and sternites narrowly bordered with yellow. *Legs* rather short, testaceous. Anterior and median femora presenting a brown ring near the apex; anterior tibiae perforated with an external, oval tympanum. Posterior femora obliquely striated with brown on their external face; posterior tibiae armed with 2 internal, 3 external long spines; 2 internal apical spurs only, the superior much shorter than the inferior one; 3 external spurs of which the median the longer. *Elytra* extending to the apex of abdomen, blackish brown, feebly pubescent; veins and apical margin yellowish; mirror wider than long, presenting three cells in the apical part; diagonal vein straight, rather short; lateral field blackish with the radial vein yellow. No wings. Genitalia of a quite different type as the *Pteronemobius*; they are in the shape of a single plate, narrowing towards the apex, which is rounded and feebly notched (fig. 113).

*Length* of body 6.2 mm.; post. fem. 4.5 mm.; elytra 3 mm.

*Range*.—INDIA: West Bengal: Kurseong. Assam.

### 151. *Speonemobius punctifrons* n. sp.

*Holotype*: Assam: Ledo Road, 8 m. from Ledo (J. W. H. Rehn, 8.X.1944), ♀ (Academy of Natural Sciences, Philadelphia).

Rather small and slender. *Head* testaceous-brown above; frontal rostrum yellowish, marked with small brown spots and presenting two rows of black bristles. Face yellowish with two small brown lines on the postclypeus. Maxillary palpi rather long, yellowish; 4th joint very short, 5th longer, triangular, darkened at top. Pronotum transverse, feebly narrowing in front; disk feebly convex, pale brown with small brown spots; anterior and posterior margins with a few such spots bearing long bristles; lateral lobes with straight inferior margin, presenting a large, triangular brown spot. *Abdomen* brownish. *Legs*: Anterior and median legs yellowish; femora presenting a faint longitudinal brown line; tibiae feebly ringed with brown, the anterior ones with a small external tympanum; tarsi yellowish, the top of the joints brown. Posterior femora rather stout, yellowish, feebly striated with brown; tibiae armed with 3 spines on each margin; 3 external apical spurs, the median much longer than the other two; 2 internal spurs, the superior much longer than the median,

extending to three-fourths of the metatarsus which is long, darkened at apex, armed with long apical spurs, especially the internal one; 3rd joint long and slender, darkened at top. *Elytra* a little shorter than the abdomen; dorsal field brownish, darker at base, with a lighter humeral band, rather strongly pubescent; veins rather thick, lighter than the background; they are oblique, somewhat irregular, 3 in number and the cubital is furcate; lateral field translucent with dark base, presenting 3 regularly distant veins; *Sc.* bearing a short branch near the apex. Wings very long. *Ovipositor* rather long, very feebly curved, with apical valves narrow, acute, with smooth margins.

*Length* of body 4.5 mm.; length with wings 9 mm.; post. fem. 3.8 mm.; *elytra* 2.2 mm.; *ovipositor* 2.5 mm.

### Genus HOMONEMOBIUS Chopard

1935. *Homonemobius* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 285.

*Type*.—*Nemobius monomorphus* Bolivar.

*Range*.—South India.

This genus differs from *Pteronemobius* in the elytral venation being similar in both sexes, without mirror in the male. Anterior tibiae unperforated. Posterior tibiae armed with four spines on each margin, the first internal tuberculiform in the male.

### 152. *Homonemobius monomorphus* (Bolivar)

(Figs. 114, 117)

1900. *Nemobius monomorphus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 794.

1935. *Homonemobius monomorphus* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 285.

Small. *Colour* rufo-testaceous. *Head*: Occiput with four, well marked, light lines. *Pronotum* wider than long, with parallel margins; disk with two pale bands on the sides, anterior and posterior margins more or less tinged with yellowish; lateral lobes with yellowish inferior margin. *Legs* short, rufo-testaceous, a little mottled with brown. Anterior femora with a feebly marked brown ring. Posterior femora stout, striated with brown; posterior tibiae armed with 4 spines on each margin, the first internal differentiated in the

male and the 4th strongly incurved and swollen at base. *Elytra* almost similar in both sexes, scarcely extending to the apex of 5th abdominal tergite, truncated and feebly rounded at apex; dorsal field brown, shining, with a pale lateral band, presenting 4 straight, regularly distant veins; transverse veinlets scarce; lateral field presenting 4 veins. No wings. *Abdomen* brown with two rows of light spots. *Ovipositor* rather long, straight, with apical valves narrow, lanceolate, with finely denticulated margins. *Genitalia* of the same type as *Pteronemobius indicus*, the superior part rounded, the inferior pieces hooked (fig. 114).

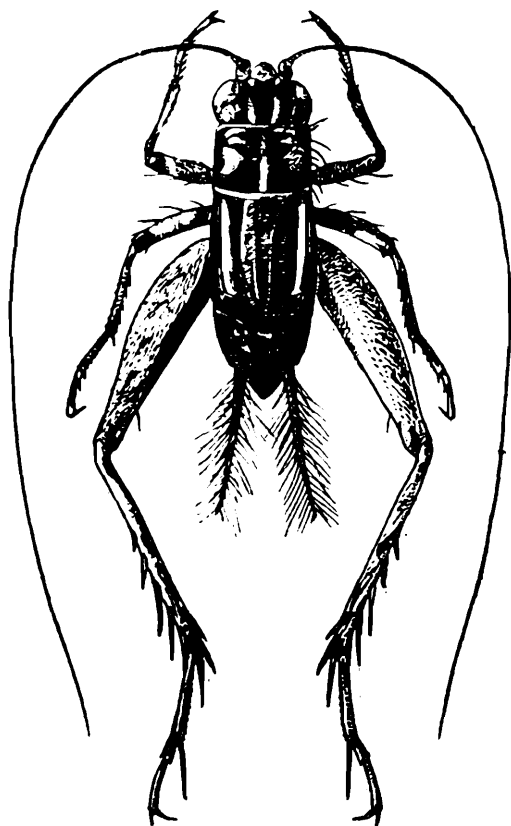


FIG. 117. *Homonemobius monomorphus* Bol., ♂ ( $\times 5.8$ ).

*Length* of body 5–6.5 mm.; post. fem. 4–4.2 mm.; elytra 1.8–2.3 mm.; ovipositor 3–3.1 mm.

According to R. P. Decoly, this species is very common in grass.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodai-kanal (type, Bolivar's collection in M.M.); Madura; Shambaganor (P.M.).



Genus **PARANEMOBIUS** Saussure1877. *Paranemobius* Saussure, *Mém. Soc. Genève*, **25**, 63.1877. *Pseudonemobius* Saussure, *Mém. Soc. Genève*, **25**, 66, 336.*Type*.—*Pseudonemobius pictus* Saussure.*Range*.—Ceylon, India.

Very special habitus, chiefly due to the length of the posterior legs, the femora of which are very much attenuated in their apical part. Head somewhat excavated above; frontal rostrum narrow. Elytra of male without mirror, presenting almost straight; protuberant veins. Anterior tibiae perforated on their external face only. Spines of the posterior tibiae very long, pubescent; supero-internal apical spur as long as the metatarsus.

*Key to the species of* **PARANEMOBIUS**

- |   |                                |
|---|--------------------------------|
| Elytra extending only to the apex of first abdominal tergite, with internal margin oblique; veins of the dorsal field plain, almost straight..... | <i>pictus</i> (Sauss.), p. 174 |
| Elytra extending to the apex of fourth abdominal tergite; veins of the dorsal field oblique, the cubital furcate.                                 | <i>vicinus</i> Chop., p. 176   |

**153. *Paranemobius pictus* (Saussure)**

(Figs. 115, 118)

1877. *Pseudonemobius pictus* Saussure, *Mém. Soc. Genève*, **25**, 67, pl. 11 (VI), figs. 1–3. Bolivar, 1900, *Ann. Soc. ent. Fr.*, **68** (1899), 793.1925. *Paranemobius pictus* Chopard, *Ann. Mag. nat. Hist.*, (9) **15**, 506. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 284. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 41. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 550.

Medium size. *Colouration* strongly variegated with blackish and yellowish; feebly pubescent. *Head* short; vertex deeply excavated. *Pronotum* transverse; lateral lobes with inferior margin ascending posteriorly; disk adorned with three transverse black bands. *Abdomen* black above, yellow beneath; tergites adorned in the middle with a transverse yellow line. *Legs* very long. Anterior and median femora adorned with black longitudinal lines; tibiae and tarsi annulated with black. Posterior femora presenting three oblique black lines and a longitudinal band of the same colour; tibiae and tarsi annulated with black. *Elytra* very short, covering only the first abdominal segment, blackish with thick, whitish veins;

these veins are almost straight and regular in the female, presenting in the male a few irregular cells near the internal margin.

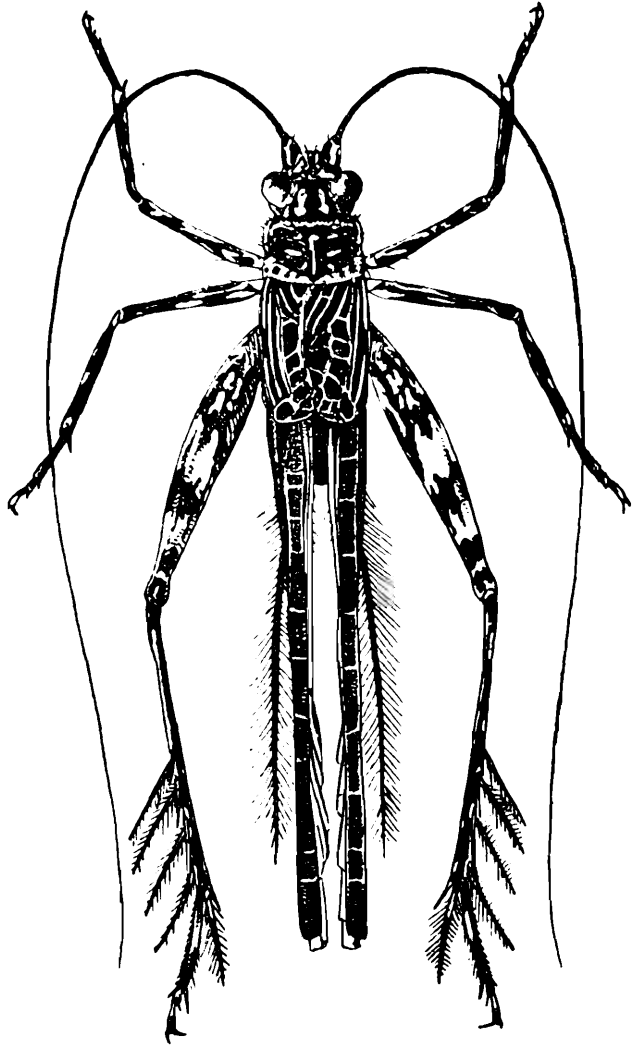


FIG. 118. *Paranemobius pictus* Sauss., macropterous ♂ ( $\times 3.5$ ).

♂: Subgenital plate truncated at apex, yellow with a black longitudinal band. *Genitalia* quite different from those of *Pteronemobius*, long, narrow, notched at apex (fig. 115).

♀: Subgenital plate notched at apex. *Ovipositor* long, straight, with narrow, smooth apical valves.

*Length* of body 8.5–10 mm.; pronot. 2 mm.; post. fem. 7–8.8 mm.; elytra ♂ 1.5 mm, ♀ 2–2.1 mm.; ovipositor 11–12 mm.

This species is common in Ceylon on rocks near water.

*Range*.—INDIA: Kashmir (type in Saussure's collection in G.M.). Central Provinces (Madhya Pradesh): Nagpur.

Bombay (Maharashtra): Satara Dist.; Medha; Yerrah Valley (P.M.). Bihar: Chotanagpur; Singhbhum Dist. (I.M.). Mysore: Bangalore (P.M.); Shimoga; Tunga River (Phil. M.). Travancore (Kerala): Tenmalai; Western Ghats (P.M.); Cochin; Parambikulam (P.M.); Malabar; Olayakkot (P.M.). Madras: Nilgiris; Burbyar. CEYLON: Peradeniya; Labugama; Kitulgala; Râtnapura; Kallar; Kalawana; Uodoowace; Mahaoya.

### 154. *Paranemobius vicinus* Chopard

(Fig. 116)

1928. *Paranemobius vicinus* Chopard, *Rec. Ind. Mus.*, **30**, 4, fig. 4. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 284.

Very close to the preceding. *Colouration* variegated with fine testaceous and black lines and spots. Frontal rostrum very narrow. *Pronotum* with posterior margin slightly angulate; lateral lobes ascending very slightly posteriorly, but weakly folded inwards, forming a small oblique keel running from the posterior margin to anterior angle. *Legs* shorter than in *pictus*. Posterior femora marked with rather wide blackish stripes which are transverse and not longitudinal as in *pictus*; posterior tibiae with rather shorter spines, the supero-internal apical spur not reaching the apex of metatarsus.

♂: *Elytra* extending to the posterior margin of second abdominal tergite, without any speculum; the left elytron presenting two veins, the right one three; both the longitudinal veins and the transverse veinlets very much elevated; the areolae consequently resembling small cups. Subgenital plate rather long, slightly notched at apex, leaving space for a long process of the epiproct. *Genitalia* of the same general shape as those of *P. pictus*, but not at all notched at apex (fig. 116).

♀: *Elytra* as long as in the male, overlapping on the median line; the internal margin of left elytron transparent, its apical margin a little truncated; dorsal field with veins standing out light against the dark background, 5 in number, feebly oblique; cubital vein furcate at apex; lateral field with 4 equidistant veins. *Ovipositor* very long, as in *pictus*.

*Length* of body 10 mm.; post. fem. 8 mm.; elytra 4 mm.; ovipositor 9.5 mm.

Although resembling *P. pictus* very closely in general appearance, this species differs from it in the disposition of the

elytral veins, the genitalia and the length of the elytra. I have seen one macropterous specimen of it.

*Range.* INDIA: Bombay: Dudh Sagar (B.M.); Western Ghats; all along the tramway (I.M.). Mysore: Coorg; Sidapur (B.M.). Travancore (Kerala): Cochin; Parambikulam (type, P.M.).

### Genus SCOTTIOLA Uvarov

1912. *Scottia* Bolivar, *Trans. Linn. Soc. London*, **15**, 279, pl. 13.

1940. *Scottiola* Uvarov, *Ann. Mag. nat. Hist.*, (11) **6**, 377 (nom. nov.).

*Type.*—*Scottia chagosensis* Bolivar.

*Range.*—Seychelles Islands, Chagos Archipelago, India, Ceylon, Malaya, Samoa, Sarawak.

Apterous in both sexes; pubescent and covered with long bristles. Anterior tibiae unperforated or presenting a small external tympanum. Posterior tibiae armed with 3 external, 2 or 3 internal spines.

### Key to the species of SCOTTIOLA

- 1 Posterior femora obliquely striated with brown on their external face; posterior tibiae adorned with three brown rings. Anterior tibiae with an external tympanum. . . . *minima* (Chop.), p. 177
- Posterior femora unicolorous or with a faintly visible brown band; posterior tibiae without brown rings; anterior tibiae unperforated. . . . 2
- 2 Body somewhat depressed; head flattened above; pronotum with almost parallel sides; abdomen with rufous spots. *rufovariegata* (Chop.), p. 179
- Head and pronotum convex above; pronotum rather strongly narrowing posteriorly; colouration uniformly brown. *ceylonica* (Chop.), p. 178

### 155. *Scottiola minima* (Chopard)

1928. *Scottia minima* Chopard, *Rec. Ind. Mus.*, **30**, 5, fig. 7.

♀: Apterous, small. *Colour* rufous-brown, with a silvery pubescence and very long black bristles. *Head* large, rounded, yellowish-brown, with brown bands on the occiput; frontal rostrum wide, presenting four rows of bristles. *Palpi* concolorous, with 4th joint shorter than 3rd, 5th rather

long, a little enlarged and darkened at apex. Antennae yellowish, indistinctly ringed with brown. *Pronotum* transverse, with straight anterior and posterior margins; disk convex, rufous, bearing numerous black bristles along the anterior and posterior margins; lateral lobes mottled with brown, their inferior margin slightly ascending anteriorly. *Abdomen* rufous, with black sides. *Legs* a little lighter than the body, very indistinctly ringed with brown. Anterior tibiae with a small oval tympanum on its external face. Posterior femora markedly swollen, with external face obliquely striated; posterior tibiae presenting three wide brown rings and bearing on each side 3 very long spines which are brown in the middle. Posterior metatarsi rather long, brown with yellowish base and apex. *Ovipositor* short, straight, with apical valves rather large, almost wholly smooth, the superior margins scarcely denticulated.

*Length* of body 4.5 mm.; post. fem. 3.8 mm.; ovipositor 2.5 mm.

*Range*.—INDIA: Assam: Bhutan Frontier; Darrang Dist.; Mangaldai (type, I.M.).

### 156. *Scottiola ceylonica* (Chopard)

1936. *Scottia ceylonica* Chopard, *Ceyl. J. Sc.*, (B) 20, 45, fig. 8.  
Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 551.

*Size* very small. *Colour* rufous-brown. *Head* brown, a little shining, without any ornamentation; frontal rostrum narrow. Face rufous. Palpi brownish; 4th joint of maxillary ones much shorter than 3rd, 5th larger, triangular. Antennae brownish. *Pronotum* transverse, with anterior and posterior margins straight, rather strongly constricted posteriorly; disk convex, feebly shining, provided with long bristles; lateral lobes concolorous with inferior margin very slightly ascending posteriorly. *Abdomen* rufous-brown with tergites a little darkened along the posterior margin, bearing a fine, rather abundant pubescence; subgenital plate small, slightly notched at apex. *Legs* a little lighter than the body. Anterior tibiae unperforated. Posterior femora rather thick, unicolorous; posterior tibiae armed with three spines on each margin; six apical spurs, the inferior ones somewhat unequal in length, supero-internal longer than the median one. *Ovipositor* rather long, straight, with apical valves narrow, lanceolate, the superior margin of the superior valves very concave.

*Length* of body 5.5 mm.; post. fem. 3.8 mm.; ovipositor 4 mm.

*Range*.—CEYLON: Nuwara Eliya (type, Col. M.); Mousakande; Gammaduwa; Hakgala (Col. M.).

### 157. *Scottiola rufovariegata* (Chopard)

(Fig. 119)

1931. *Scottia rufovariegata* Chopard, *Bull. Raffles Mus.*, No. 6, 133, fig. 4.

♂: Small. *Colouration* brown varied with rufous spots. *Head* rufous-brown with a somewhat lighter median line; vertex sloping, forming at apex a short, rounded rostrum, as wide as the first antennal joint. Face short, rufous. Antennae brown, lighter at base. *Pronotum* a little wider than long, rather strongly narrowing posteriorly; anterior and posterior margins straight, both lined and provided with long bristles; disk convex, rather light rufous, furrowed on the median line; lateral lobes dark brown, with nearly straight inferior margin. *Metanotum* brown, strangled between the pronotum and the abdomen which is rather strongly widened

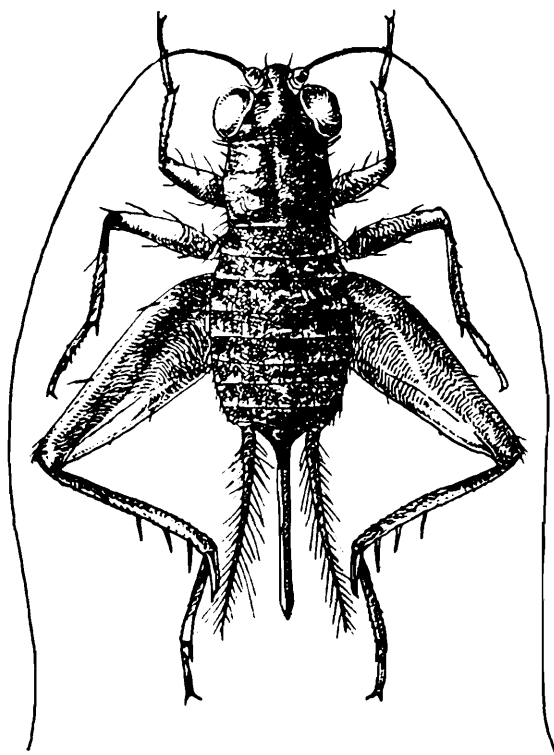


FIG. 119. *Scottiola rufovariegata* (Chop.), ♀ ( $\times 5.3$ ).

with convex sides. Abdominal tergites brown, mottled with light rufous; subgenital plate navicular, subacute at apex. *Legs* a little lighter than the body. Anterior and median

femora feebly darkened towards the apex; anterior tibiae unperforated; tarsi nearly as long as the tibiae. Posterior femora thick, presenting a faintly visible brown band on their external face; posterior tibiae rather strong, armed with 3 spines on each margin, the external ones slender, the internal somewhat thickened, chiefly the two inferior ones which are swollen; 6 apical spurs of which the inferior ones very small, chiefly the internal; the two large internal ones rather long, the superior feebly exceeding the median and scarcely equalling the middle of the metatarsus.

♀: A little larger than the male, similar to it; abdomen a little more uniform in colour; tibial spines not swollen. *Ovipositor* short, straight, with apical valves very large, occupying half the total length, their margins smooth.

*Length* of body ♂ 5 mm., ♀ 6 mm.; post. fem. ♂ 4.2 mm., ♀ 4.5 mm.; ovipositor 3 mm.

This small species is distinguished by the tibial spines which are rather strongly swollen in the male sex.

*Range*.—MALAYA: Pahang: Cameron Highlands, alt. 4,800 ft. (type in Sel. M.); Sungai Tembeling (Sel. M.).

### 3. Family MYRMECOPHILIDAE

This family includes small, apterous, strongly specialized Gryllids. Their shape is short, ovoid; the head small, with reduced eyes. The posterior femora are considerably swollen; posterior tibiae armed, on each superior margin, with a few long, movable spines. Cerci rather long, erected, presenting traces of segmentation. Ovipositor with diverging apical valves, the stem presenting a membranaceous sheath.

The *Myrmecophilidae* are found in ant nests and they live freely amongst the ants. In many species the males are scarce and even unknown and the reproduction is probably parthenogenetic.

#### *Key to the genera of MYRMECOPHILIDAE*

Forehead pubescent. Inferior margin of posterior femora bearing small tubercles; tibial spines and spurs, as well as posterior metatarsi and their spurs, provided with a very long pubescence.

*Myrmophilellus* Uvar.,  
p. 183

Forehead and tibial spines without special pubescence; no tubercles on the inferior margin of posterior femora.

*Myrmecophilus* Berth.,  
p. 181

## Genus MYRMECOPHILUS Berthold

1827. *Myrmecophilus* Berthold, *Nat. Fam. Thierr.*, 409.1829. *Myrmecophila* Latreille, *Règne animal* (ed. 2), 5, 183.

Exhibiting the characters of the family.

*Type*.—*Blatta acervorum* Panzer.*Range*.—Cosmopolitan.*Key to the species of MYRMECOPHILUS*

- |   |   |   |
|---|---|---|
| 1 | Posterior tibiae armed with three internal spines. ....                       | 2                                       |
|   | Posterior tibiae armed with four internal spines. ....                        | 3                                       |
| 2 | Second internal spine of the posterior tibiae shorter than first and third... | <i>escherichi</i> (Schimmer),<br>p. 181 |
|   | Internal spurs of the posterior tibiae almost equal in length. .              | <i>albicinctus</i> (Chop.), p. 181      |
| 3 | Fourth joint of maxillary palpi much shorter than fifth. .                    | <i>dubius</i> (Sauss.), p. 182          |
|   | Fourth joint of maxillary palpi almost as long as fifth.                      | <i>gracilipes</i> (Chop.), p. 183       |

158. *Myrmecophilus escherichi* (Schimmer)

1910. *Myrmecophila escherichi* Schimmer, in *Escherich, Termitenleben auf Ceylon*, 235, fig. 61. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 58. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 555.

*Colour* yellowish brown; feebly pubescent except on the two last tergites which are provided with a few long bristles. *Pronotum* wide, with regularly convex sides. Cerci presenting 13 joints. Posterior tibiae armed with 3 internal, 2 external spines, the first internal twice as long as the second, which is only one-third of the last one. Posterior femora relatively narrow.

This species is known only from the type specimen which is a young larva 1.6 mm. long.

*Range*.—CEYLON.

159. *Myrmecophilus albicinctus* (Chopard)

1924. *Myrmecophila albicincta* Chopard, *Rec. Ind. Mus.*, 26, 184, figs. 24–28.

♀: Shape wide. *Colour* dark brown with a very neat light band on the mesonotum. Palpi very pale yellow; 4th joint



very short, 5th long, feebly widening at apex. Eyes small, formed of 14 big ommatidia. *Legs*: Posterior femora very short and thick; posterior tibiae armed with 3 internal spines only. Epiproct triangular, subacute at apex. *Ovipositor* very short, thick, the superior valves a little longer than the inferior ones, diverging, ending in the shape of an oval spatula, presenting two small points near the apex.

*Length* of body 3.5 mm.; ovipositor 1.3 mm.; cerci 1.6 mm.

This species is easily distinguished by its colouration and by the shape of the ovipositor; but the small points of the apical valves may be scarcely visible.

*Range*.—INDIA: Orissa: Barkuda Island, with *Camponotus mitis* (type, I.M.). Kerala: Malabar; Pattambi, with *Prenolepis longicornis* (P.M.).

1928. *Var. concolor* Chopard, *Rec. Ind. Mus.*, 30, 21.

This form, of which only a single male is known, presents all the characters of *M. albicincta* but without any light band on the mesonotum. It is perhaps a distinct species but it would be necessary to know the female to compare it with *albicincta*.

*Range*.—INDIA: Punjab: Matiana. Himachal Pradesh: Simla hills, alt. 8,000 ft. (I.M.).

## 160. *Myrmecophilus dubius* (Saussure)

1877. *Myrmecophila dubia* Saussure, *Mém. Soc. Genève*, 25, 293.

General *colouration* light brown; abdominal tergites with a dark band along the posterior margin. *Head*: Palpi yellowish; last joint of the maxillary ones longer than the fourth, which is very short, widening at apex. Cerci light brown, rather neatly segmented. Tenth abdominal tergite presenting two small tubercles on the posterior margin; epiproct whitish, almost membranous, furrowed in the middle. Posterior *legs* very strong with femora very much dilated; posterior tibiae armed with 4 internal spines, the first and third being short, subequal. *Ovipositor* rather long, with apical valves slender, with almost parallel margins, presenting a few small denticles near the apex.

*Length* of body 3 mm.; cerci 1.1 mm.; ovipositor 1.55 mm.

*Range*.—INDIA: Andaman Islands: Port Blair (P.M.). MALAYA: Bitang (type, Ber. M.). SUMATRA.

**161. *Myrmecophilus gracilipes* (Chopard)**

1924. *Myrmecophila gracilipes* Chopard, *Rec. Ind. Mus.*, **26**, 185, figs. 29-33.

♀: *Size* and general habitus of the preceding, slightly more elongate, narrower. *Head*: Eyes small. Antennae rather thin, whitish. Maxillary palpi whitish, rather long, their 4th joint as long as the 3rd, 5th feebly dilated at apex. Thoracic segments somewhat darkened posteriorly. *Abdomen* narrowing posteriorly; 10th tergite forming two small tubercles with three bristles on each. Cerci comparatively narrower and longer than in other species of the genus, very neatly jointed. *Legs* paler than the body. Posterior tibiae slender, curved, armed with rather long spines, of which 4 are internal, the 2nd and 4th much the longer, and one external; posterior tarsi long and slender, the metatarsus armed with 2 long apical spurs and 3 small spines. *Ovipositor* rather long, narrow; superior valves much longer than inferior ones, very narrow, acute at apex, with superior margin subdentate.

*Length* of body 4 mm.; post. fem. 2 mm.; cerci 1.45 mm.; ovipositor 1.6 mm.

Very similar to the preceding but differing in the shape of the maxillary palpi and the more slender posterior legs.

*Range*.—INDIA: Orissa: Barkuda Island, with *Acropyga acutiventris* (type, I.M.); Puri (P.M.).

**Genus MYRMOPHILELLUS Uvarov**

1928. *Myrmegryllus* Chopard, *Rec. Ind. Mus.*, **30**, 21.

1940. *Myrmophilellus* Uvarov, *Ann. Mag. nat. Hist.*, (11) **6**, 113 (nom. nov.).

*Type*.—*Myrmegryllus pilipes* Chopard.

*Range*.—Ceylon.

General shape of *Myrmecophilus*; forehead pubescent; inferior margin of posterior femora bearing small tubercles; tibial spines and apical spurs as well as posterior metatarsi and their spurs, provided with a very long pubescence.

**162. *Myrmophilellus pilipes* (Chopard)**

(Fig. 120)

1928. *Myrmegryllus pilipes* Chopard, *Rec. Ind. Mus.*, **30**, 21, fig. 30.

1954. *Myrmophilellus pilipes* Sandrasagara, J. Bombay nat. Hist. Soc., 52, 555.

♂: Small. *Colour* dark brown. *Head*: Frontal rostrum rather narrow, its sides angulate, with a rather long pubescence. Maxillary palpi with 4th joint very short and dilated at apex, 5th large, elongate and triangular. Antennae rather thick, brown, with a short pubescence. *Pronotum* wide, with anterior margin almost straight. *Abdomen* dark brown, a little lighter towards the apex; 10th tergite with very projecting angles; epiproct small, triangular. Cerci rather long, not very thick, showing 11 distinct joints. *Legs* a little lighter than the body. Anterior and intermediate ones rather long and slender, the tarsi very long, about three-fourths of the length of the tibia. Posterior femora relatively slightly swollen, their inferior margin slightly convex, presenting a row of about 15 small rounded tubercles. Tibial spines and spurs very hairy; 4 internal spines, the first a little shorter than the second, the latter equal to the third, fourth very long; only one rather long external spine; tarsi long, the metatarsus presenting two small spines above on the median line, its superior margins also provided with a very long and thick pubescence.

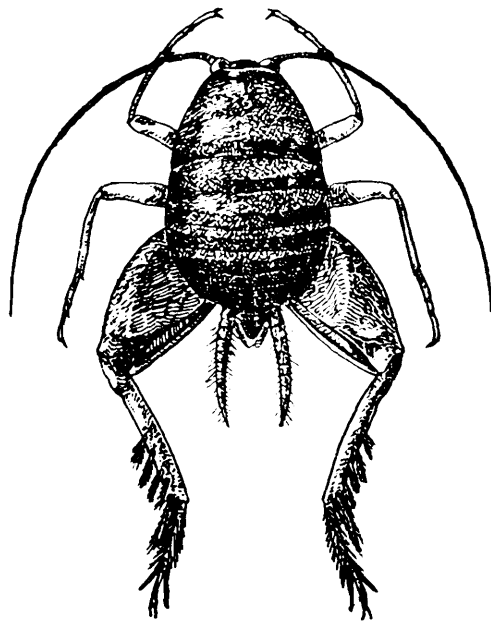


FIG. 120. *Myrmophilellus pilipes* (Chop.), ♂ (×9.0).

*Length* of body 3.2 mm.

*Range*.—CEYLON: Peradeniya (type, I.M.); Colombo; Battaramulla; Mousakande; Gammaduwa; Bandarawela; Bibile; Oo'doowerre Demodera (Sandrasagara).

## 4. Family MOGOPLISTIDAE

Small Gryllids, more or less covered with very frail scales. Posterior tibiae serrulated on the superior margins, without spines. Males winged or not, females always apterous. Elytra of males, when they are present, with a very large mirror and one oblique vein only.

*Key to the genera of MOGOPLISTIDAE*

- |   |   |   |
|---|---|---|
| 1 | Posterior metatarsi very long, more than the half of the tibiae, feebly armed above (fig. 121). . . . . | 2   |
|   | Posterior metatarsi shorter than the half of the tibia, armed above with denticles (fig. 122). . . . .  | 3   |
| 2 | Last joint of the maxillary palpi very short (fig. 123).  | <i>Micrornebius</i> n. gen.,<br>p. 203    |
|   | Last joint of the maxillary palpi long  | <i>Cycloptiloides</i> Sjöst.,<br>p. 205   |
| 3 | Frontal rostrum much wider than the first antennal joint. . . . .                                       | 4   |
|   | Frontal rostrum narrower or scarcely wider than the first antennal joint. . . . .                       | 6   |
| 4 | Anterior tibiae perforated with an internal tympanum. . . . .   | 5   |
|   | Anterior tibiae unperforated . . . . .  | <i>Pachyornebius</i> , n. gen.,<br>p. 202 |
| 5 | Elytra of male usually completely concealed beneath the pronotum. . . . .                               | <i>Derectaotus</i> Chop., p. 194          |
|   | Elytra of male almost entirely visible  | <i>Gotvendi</i> Bol., p. 200              |
| 6 | Anterior tibiae unperforated; both sexes apterous.  | <i>Arachnocephalus</i> Costa,<br>p. 201   |
|   | Anterior tibiae perforated on internal face; male with elytra. . . . .                                  | 7   |
| 7 | Pronotum of male feebly produced backwards, leaving free a large part of the elytra. . . . .            | <i>Ornebius</i> Guér., p. 185             |
|   | Pronotum of male strongly produced backwards; elytra almost completely covered.                         | <i>Ectatoderus</i> Guér., p. 191          |

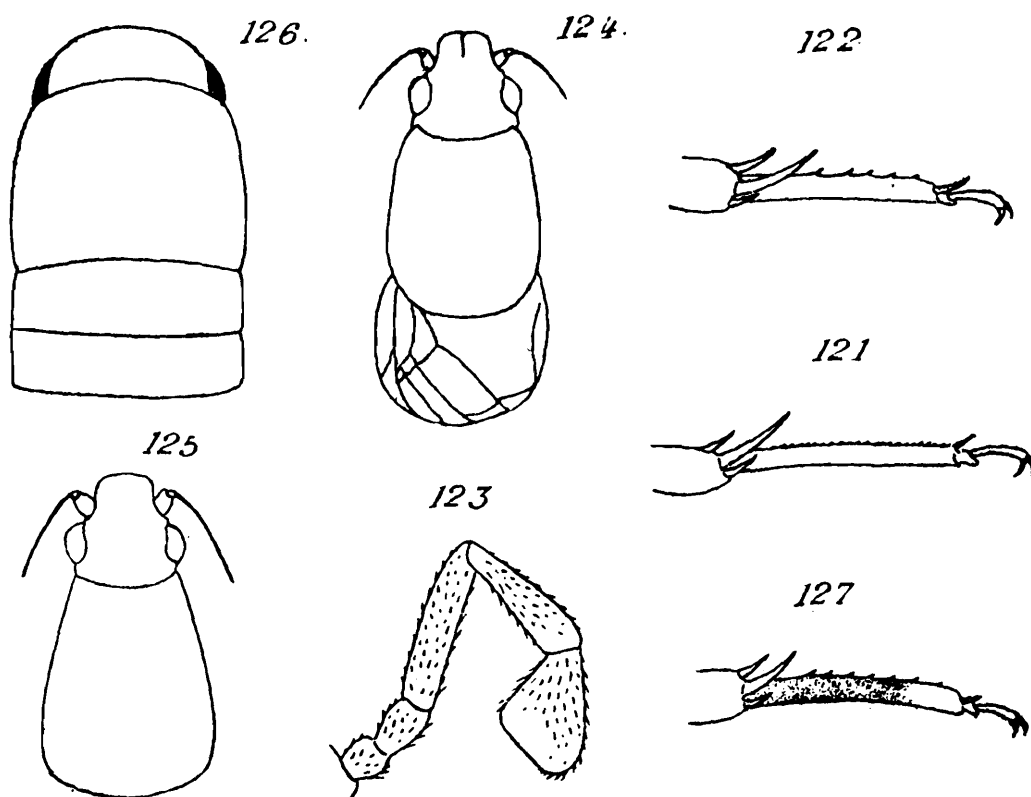
## Genus ORNEBIUS Guérin

(Fig. 122)

1844. *Ornebius* Guérin, *Icon. R. anim., Ins.*, 331.1877. *Liphoplus* Saussure, *Mém. Soc. Genève*, 25, 315.*Type*.—*Ornebius xanthopterus* Guérin.*Range*.—Africa, South Asia, Japan, Australia, Central America.

Body feebly depressed, pubescent and covered with scales;

frontal rostrum rather narrow, furrowed. Anterior tibiae perforated at base of internal face with a small, round tympanum. In the males, the pronotum is moderately produced backwards, the elytra being widely visible. Females wholly apterous.



FIGS. 121 to 127. 121. posterior metatarsus of *Cycloptiloides*. 122. *id.*, of *Ornebius*. 123. maxillary palpus *Micronebius*. 124. anterior part of *Ornebius nigripalpis*. 125. *id.*, of *Derectatotus maindroni*. 126. *id.*, of *Micronebius annandalei*. 127. posterior tarsus of the same.

### Key to the species of ORNEBIUS

- |   |   |                                  |
|---|---|----------------------------------|
| 1 | Face and frontal rostrum concolorous  | 2                                |
|   | Face and frontal rostrum blackish.  | 6                                |
| 2 | Elytra whitish, more or less spotted with brown.  | 3                                |
|   | Elytra testaceous with a wide, blackish apical band.                                      | 5                                |
| 3 | Mirror small, obliquely rectangular...  | <i>nigripalpis</i> Guér., p. 189 |
|   | Mirror large, occupying almost the whole of the exposed part of the elytra.               | 4                                |
| 4 | Larger (7-8 mm.); blackish spots of the elytra rather diffuse; ovipositor longer (5 mm.). | <i>guérini</i> (Bol.), p. 187    |
|   | Smaller (5.5 mm.); elytra more neatly spotted with blackish; ovipositor shorter (3 mm.).  | <i>varipennis</i> Chop., p. 188  |

- 5 Larger (10 mm.); posterior femora blackish. . . . . *fasciatus* (Brunn.), p. 189  
 Smaller (7·5–8 mm.); posterior femora rufous. . . . . *pendleburyi* n. sp., p. 190  
 6 Elytra of male covered almost as far as the middle of the mirror. . . . . *nigrifrons* n. sp., p. 191  
 Elytra of male uncovered from the base of the mirror . . . . . *nigrirostris* n. sp., p. 190

### 163. *Ornebius guérini* (Bolivar)

(Fig. 128)

1900. *Liphoplus guérini* Bolivar, *Ann. Soc. ent. Fr.*, **68** (1899), 801, pl. 12, fig. 25.  
 1925. *Liphoplus ceylonicus* Chopard, *Ann. Mag. nat. Hist.*, **15**, 519, fig. 12.  
 1936. *Ornebius guérini* Chopard, *Ceyl. J. Sc.*, (B) **20**, 60.  
 Chopard and Chatterjee, 1937, *Ind. Forest Rec.*, **3**, 25.  
 Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 556.

♂: *Colour* rufo-testaceous, more or less spotted with brown and covered with greyish scales. *Head*: Frontal rostrum a little wider than the first antennal joint, feebly furrowed.

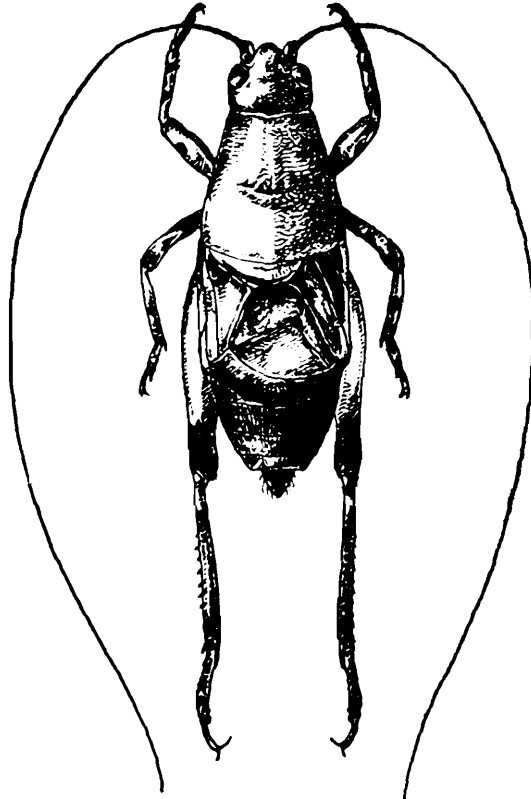


FIG. 128. *Ornebius guérini* (Bol.), ♂ (× 6·2).

*Pronotum* rufous, feebly produced backwards; lateral lobes covered with white scales. *Abdomen* dark brown; process of

the paraprocts erected straight, feebly compressed with blunt apex, bearing a few long white hairs. *Legs* yellowish, more or less spotted with brown. *Elytra* whitish with darkened posterior margin and several feebly marked blackish spots at base and in the middle; lateral field blackish with a wide yellow band in the superior part; mirror completely visible, as wide as long.

♀: *Head* and *pronotum* rufous; *abdomen* blackish. *Ovipositor* rather long, straight, with apical valves narrow, acute, their superior margin almost straight, smooth, inferior valves presenting 6 short, rounded teeth.

*Length* of body ♂ 7–7.5 mm., ♀ 8.5 mm.; pronot. ♂ 2.5–2.8 mm., ♀ 2 mm.; post. fem. 4–4.5 mm.; elytra ♂ 2.5 mm.; ovipositor 4.5–5 mm.

*Range*.—INDIA: Madras: Palni Hills (type of *guérini*, M.M.); Kodaikanal (P.M.); Nilgiris; Coonoor (P.M.); N. Salem; Ayur; Jawalagiri (For. Res. Inst., P.M.). CEYLON: Peradeniya (type of *ceylonicus*, Col. M.); Trincomalee; Yala; Kandy; Wellawaya (Col. M.).

#### 164. *Ornebius varipennis* Chopard

1936. *Ornebius varipennis* Chopard, *Ceyl. J. Sc.*, (B) 20, 60.  
Sandraasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 556.

♂: Small. *Colour* rufous-brown, covered with greyish scales. *Head* with frontal rostrum a little wider than the first antennal joint, neatly furrowed. Maxillary palpi yellowish, the 4th joint shorter than the 3rd, 5th scarcely equalling the 3rd, funnel-like, widening at top. Antennae yellowish. *Pronotum* a little produced posteriorly, with posterior margin feebly convex; disk rufous with greyish scales; lateral lobes covered with white scales. *Abdomen* dark brown covered with yellowish-grey scales which are mixed with small black scales; paraprocts with erect, very slender process; subgenital plate with posterior margin rounded, subangulate in the middle. *Legs* rather short, yellowish, covered with whitish scales. Anterior tibiae perforated with a small round tympanum on internal face. Posterior femora rather stout, without markings; tibiae short, serrulate; metatarsi presenting a rather strong serrulation above. *Elytra* uncovered by pronotum from the angle of the mirror; dorsal field somewhat opalescent with posterior margin whitish, marked with three black spots; mirror large, occupying almost all the uncovered part of the elytron; lateral field blackish in its inferior half.

♀: Body and legs covered with greyish scales, a little varied with brown, as a whole darker than in the male. *Pronotum* a little longer than wide, very slightly narrowing in front; lateral lobes nearly white. *Ovipositor* straight, short, with superior apical valves smooth, inferior ones a little crenulated.

*Length* of body 5.5 mm.; post. fem. 3.5–4 mm.; pronot. ♂ 2.5 mm., ♀ 2 mm.; elytra ♂ 2 mm.; ovipositor 3 mm.

This species is perhaps a local form of the preceding; it looks very much like light-coloured specimens of *guérini*, but is distinctly smaller, the elytra are more neatly spotted with white and black along the posterior margin; in the female the ovipositor is shorter.

*Range*.—CEYLON: Marichchukkaddi (type, Col. M.); Madugoda; Polonnaruwa; Wellawaya; Tennamarawadi, Trincomalee (Sandrasagara).

### 165. *Ornebius fasciatus* (Brunner)

1893. *Liphoplus fasciatus* Brunner, *Ann. Mus. Genova*, (2) 13, 202, pl. 6, fig. 72.

General *colouration* chestnut brown, lighter in the female, feebly pubescent. Facial protuberance rather strongly projecting, feebly furrowed. Antennae brown. *Legs*: Posterior femora blackish; posterior tibiae somewhat flattened, serrulated; anterior tibiae with a small internal tympanum. *Elytra* of male pale testaceous, widely bordered with blackish along the posterior margin; mirror large, oval, a little covered at base by the pronotum. *Pronotum* of the female rounded, narrowing posteriorly. *Ovipositor* straight, with apical valves acute.

*Length* of body 10 mm.; pronot. ♂ 3.5 mm., ♀ 2.3 mm.; post. fem. 5.2–6.2 mm.; elytra ♂ 3.5 mm.; ovipositor 5.5 mm.

Distinguished by the wide black band of the elytra.

*Range*.—BURMA: Carin Chebá (type, G.M.).

### 166. *Ornebius nigripalpis* Guérin

(Fig. 124)

1844. *Ornebius nigripalpis* Guérin, *Icon. R. anim., Ins.* 332.

1877. *Ectatoderus nigripalpis* Saussure, *Mém. Soc. Genève*, 25, 305, pl. 15 (XXIX), fig. 3.

Head and pronotum rufous, very pubescent. *Head* small, flattened above; facial protuberance feebly swollen, not furrowed; frontal rostrum twice as broad as the first antennal



joint, presenting a very fine furrow. Palpi almost black; 4th joint of maxillary palpi longer than 5th, which is feebly enlarged and obliquely truncated at apex. *Pronotum* rather feebly produced backwards, with widely rounded posterior margin. *Abdomen* black, pubescent and covered with yellowish scales; anal segment and cerci fulvous. *Legs* brown, mottled with spots of greyish scales. Posterior femora thick; posterior tibiae shorter than the femora; with superior margins strongly denticulated; medio-internal apical spur the longest; metatarsi rather thick, feebly compressed, denticulated on both superior margins. *Elytra* whitish with large brownish spots, covered by the pronotum as far as the middle; mirror small, oblique, almost rectangular, twice as long as wide; lateral field brown.

*Length* of body 8 mm.; pronot. 3.3 mm.; post. fem. 6.3 mm.; elytra 3.2 mm.

This species is easy to recognize by the relatively broad frontal rostrum, the palpi almost black with 5th joint shorter than the 4th, and the shape of the mirror of the male (fig. 124).

*Range*.—INDIA: Madras: Pondicherry (type, G.M.); Madras (P.M.).

### 167. *Ornebius pendleburyi* n. sp.

*Holotype*: Malaya: Pahang: Fraser's Hill, alt. 4,200 ft. (Selangor Museum).

♂: *Colour* rufous, partly covered with greyish scales. *Head* with frontal rostrum concolorous, narrower than the first joint of antennae. Antennae and palpi yellow; 4th joint of maxillary palpi shorter than 3rd, 5th large, triangular. *Pronotum* feebly widening posteriorly, with posterior margin feebly convex, provided with a row of yellowish-grey scales. *Abdomen* yellowish-brown, covered with greyish and whitish scales; process of the paraprocts black, obliquely erected, slender, acute at apex; subgenital plate black, shining. *Legs* of the same colour as the body, covered with greyish scales. *Elytra* amber-coloured, covered by the pronotum to the base of the mirror; apical margin feebly darkened.

*Length* of body 7.5 mm.; pronot. 3.2 mm.; post. fem. 5.5 mm.; elytra 2.5 mm.

### 168. *Ornebius nigrirostris* n. sp.

*Holotype*: Malaya, Kedak Peak, alt. 13,950 ft. (Selangor Museum).

♂: *Size* medium. *Colour* brownish varied with grey; frontal rostrum and face blackish. *Head* small, a little flattened;

frontal rostrum rounded, as wide as first antennal joint; ocelli placed at base of the rostrum, in a small depression. Face short, blackish-brown; cheeks whitish. Antennae yellowish with two first joints brown. Palpi yellowish-brown; 4th joint of the maxillary palpi shorter than 3rd, 5th large, triangular with apex obliquely truncated. *Pronotum* rather strongly narrowing in front, rounded behind and bordered with a row of whitish scales; disk rufous; lateral lobes whitish. *Abdomen* covered with greyish scales; subgenital plate blackish; process of the paraprocts slender, vertically erected, but wholly hidden beneath the subgenital plate. Cerci very long. *Legs* feebly annulated with brown and grey. Anterior tibiae perforated with a small round tympanum on internal face. Posterior metatarsi rather long, with denticulated superior margins. *Elytra* amber-coloured with darkened posterior margin; mirror completely exposed, as long as broad.

*Length* of body 8.5 mm.; pronot. 3.8 mm.; post. fem. 5.5 mm.; elytra 3 mm.

### 169. *Ornebius nigrifrons* n. sp.

*Holotype*: Malaya: Perak: Larut Hills, alt. 4,500 ft., ♂; *allotype*: same locality, ♀ (Selangor Museum).

♂: Very close to the preceding, but a little smaller; elytra covered as far as the middle of the mirror in consequence of the more convex posterior margin of the pronotum. Process of the paraprocts short, vertical, a little rounded at top.

♀: *Head* and *legs* as in the male. *Pronotum* about a quarter longer than broad, feebly narrowing in front, with straight anterior and posterior margins; disk rather convex, covered with yellowish-brown scales; lateral lobes whitish. *Abdomen* light brown. *Ovipositor* rather short, very slightly curved, with apical valves lanceolate, smooth, provided on the inferior margins with 4 long bristles.

*Length* of body 8 mm.; pronot. ♂ 3.8 mm., ♀ 3 mm.; post. fem. 5.5 mm.; elytra ♂ 2.8 mm.; ovipositor 4 mm.

## Genus ECTATODERUS Guérin

1849. *Ectadoderus* Guérin, in Lefèvre, *Voy. Abyss.*, 6, 336.

*Type*.—*Ectatoderus nigriventris* Guérin.

*Range*.—Africa, South Asia, West Indies, Central and South America.

This genus differs from the preceding by the pronotum of the males strongly produced backwards, covering almost completely the elytra. There is no character that enables one to distinguish the females of the various species.

*Key to the species of ECTATODERUS*

- |   |   |   |
|---|---|---|
| 1 | Frontal rostrum very narrow; pronotum of male strongly narrowing in front | <i>angusticollis</i> n. sp., p. 193     |
|   | Frontal rostrum wider than the first antennal joint.                      | 2                                       |
| 2 | Very small (5 mm.).   | <i>pallidegeniculatus</i> Brun., p. 192 |
|   | Larger (9 mm.)  | <i>ceylonicus</i> Chop., p. 192         |

**170. *Ectatoderus pallidegeniculatus* Brunner**

1893. *Ectatoderus pallidegeniculatus* Brunner, *Ann. Mus. Genova*, 33, 201, pl. 6, fig. 71.

♂: *Size* very small. *Colour* chestnut-brown. *Head*: Antennae testaceous with two first joints black. Palpi varied with testaceous and whitish. *Pronotum* rufo-testaceous, produced backwards as far as the middle of abdomen. Anterior and median *legs* chestnut-brown, varied with greyish; femora testaceous at apex. Posterior femora light testaceous, mottled with brown above, darkened at base. Posterior tibiae testaceous, darkened at apex with yellowish apical spurs; posterior metatarsi chestnut-brown with pale testaceous base and apex. *Abdomen* chestnut-brown. *Cerci* very long. *Elytra* wholly hidden under pronotum.

♀: *Head* and *legs* as in the male. *Pronotum* a little longer than wide. *Ovipositor* very short (the type is probably a nymph).

*Length* of body ♂ 5 mm., ♀ 5.5 mm.; pronot. ♂ 3.2 mm., ♀ 2 mm.; post. fem. ♂ 2.8 mm., ♀ 3.2 mm.; ovipositor 1.5 mm.

*Range*.—BURMA: Bhamo (type, Go. M.).

**171. *Ectatoderus ceylonicus* Chopard**

1928. *Ectatoderus ceylonicus* Chopard, *Spol. Zeyl.*, 14, 202, figs. 7-10. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 557.

♂: *Size* rather large. *Colour* rufous, covered with brown scales. *Head* small, a little flattened; frontal rostrum twice as wide as the first antennal joint; facial protuberance

moderately projecting; face rufous with mouth-parts yellow; cheeks covered with whitish scales; a small band of brown scales behind each eye. Palpi slender, testaceous; three distal joints of maxillary palpi nearly equal in length, the fifth joint scarcely enlarged at apex. Antennae very slender, testaceous with a few widely separated small brown rings. *Pronotum* extending very far backwards, anteriorly with a weak narrowing almost comparable to a neck; posterior margin very widely rounded; disk rufous with silver-grey scales; lateral lobes whitish with a trace of a brown band in prolongation of the postocular one. *Abdomen* black, covered with grey scales; 10th tergite yellowish; paraprocts black with a very slender, nearly horizontal process. Cerci yellow. *Legs* rather short, testaceous. Anterior and median tibiae with a brown ring near the apex, the former perforated with a round tympanum on their internal face. Posterior femora swollen, rufous. *Elytra* blackish, wholly concealed by the pronotum.

♀: *Head* and *legs* as in male. *Pronotum* slightly narrowing in front, with anterior and posterior margins straight; disk convex, rufous-brown with grey scales; lateral lobes covered with white scales and a brown band adjoining the disk. *Abdomen* black with grey scales. *Ovipositor* straight, compressed, with apical valves lanceolate, plain.

*Length* of body ♂ 9 mm., ♀ 10 mm.; pronot. ♂ 6.8 mm., ♀ 3.5 mm.; post. fem. 7 mm.; ovipositor 6.5 mm.

*Range*.—CEYLON: Horowupotana (type, B.M.); Kalkudah; Barberyn; Vilapalawewa (Col. M.).

## 172. *Ectatoderus angusticollis* n. sp.

(Fig. 129)

*Holotype*: Malaya: Singapore, ♂ (Paris Museum).

*Head* and *pronotum* rufous covered with a silky white pubescence. Frontal rostrum of the same width as the first antennal joint, rounded at apex, not furrowed. Face rufo-testaceous, smooth; facial protuberance moderately projecting, not furrowed; cheeks with a wide band of white scales. Antennae and palpi testaceous; 5th joint of maxillary palpi a little longer than 4th, moderately enlarged at apex. *Pronotum* very narrow anteriorly, strongly produced posteriorly; lateral lobes covered with white scales. *Abdomen* black above, rufous beneath and near the extremity above; epiproct transverse, with posterior margin feebly notched, rounded angles; paraprocts without process. *Legs*: Anterior and median legs rather long, rufo-testaceous, pubescent and

presenting a few very long bristles and partly covered with whitish scales; anterior tibiae with a small internal tympanum. Posterior femora rather thick, rufous with whitish scales. *Elytra* exceeding the pronotum very slightly; the disk whitish, posterior margin and lateral lobes light brown.

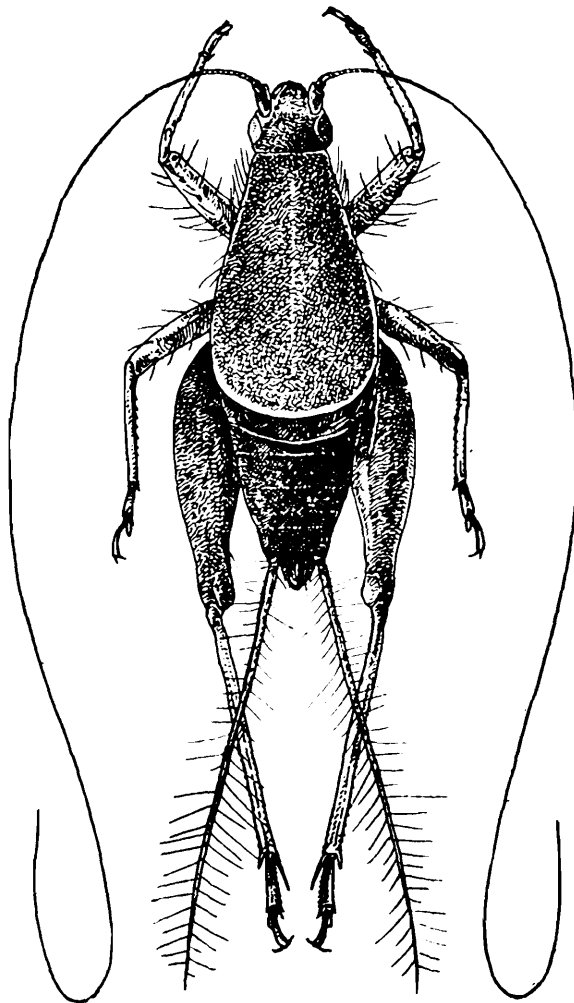


FIG. 129. *Ectatoderus angusticollis* n. sp., ♂ ( $\times 4.7$ ).

*Length* of body 9.5 mm.; pronot. 5.7 mm.; post. fem. 5.8 mm.

Clearly distinguished by the narrow frontal rostrum and the pronotum strongly narrowing in front.

### Genus DERECTAOTUS Chopard

1936. *Directaotus* Chopard, *Ceyl. J. Sc.*, (B) 20, 61.

*Type*.—*Directaotus palpatus* Chopard.

*Range*.—Ceylon, South India.

Very close to *Ectatoderus*, but the frontal rostrum shorter and broader; pronotum of the male rather feebly produced backwards, nearly as broad anteriorly as posteriorly; elytra usually concealed by the pronotum, occasionally feebly visible.

*Key to the species of DERECTAOTUS*

- |   |   |                                   |
|---|---|-----------------------------------|
| 1 | Fifth joint of maxillary palpi much shorter than fourth. . . . .  | 2                                 |
|   | Fifth joint of maxillary palpi as long as fourth. . . . .   | 4                                 |
| 2 | Fifth joint of maxillary palpi very feebly widening at apex. . . . .  | <i>henryi</i> (Chop.), p. 196     |
|   | Fifth joint of maxillary palpi triangular. . . . .  | 3                                 |
| 3 | Pronotum of male rounded posteriorly  | <i>palpatus</i> Chop., p. 195     |
|   | Pronotum of male with posterior margin almost straight. . . . .   | <i>maindroni</i> (Chop.), p. 197  |
| 4 | Rather large species (10.5 mm.); 10th abdominal tergite and epiproct whitish; 5th joint of maxillary palpi rather wide. . . . . | <i>leucopygus</i> (Chop.), p. 198 |
|   | Smaller (7-8 mm.); 5th joint of maxillary palpi scarcely enlarged at apex. . . . .  | 5                                 |
| 5 | Elytra of male feebly extending beyond the posterior margin of pronotum. . . . .  | <i>ceylonicus</i> (Chop.), p. 199 |
|   | Elytra of male completely concealed. . . . .  | <i>indicus</i> (Chop.), p. 197    |

**173. *Derectaotus palpatus* Chopard**

1936. *Derectaotus palpatus* Chopard, *Ceyl. J. Sc.*, (B) 20, 62.  
Sandraagara, 1954, *Bombay nat. Hist. Soc.*, 52, 556.

♂: *Colour* rufous-brown, covered with greyish and whitish scales. *Head* rounded with a slender whitish line along the eyes; frontal rostrum twice as broad as the first antennal joint, furrowed in the middle; face russet-yellow. Maxillary palpi with 4th joint longer than 3rd, 5th short but very wide at apex, quite triangular in shape. Antennae very slender, yellowish with a few small brown rings. *Pronotum* feebly narrowing in front, rather strongly produced and rounded posteriorly, with feebly convex sides; disk rufous covered with brown and white scales, the latter forming faintly marked bands; lateral lobes blackish. *Abdomen* varied with brown and whitish, with a few small black points on the posterior margin of the tergites; epiproct rounded at apex. *Legs* varied with brown and whitish. Anterior and median tibiae brown with two yellow rings, the anterior ones perforated with a rather large tympanum at

base of the internal face. Posterior femora stout; brown mottled with white; posterior metatarsi rather long, denticulated above; 3rd joint long and slender. *Elytra* completely concealed by the pronotum.

♀: Body a little more varied in colour than in the male (on account of the better conservation of the squamose covering). *Pronotum* as long as wide, a little narrowing forward, with straight anterior and posterior margins. Subgenital plate large, carinated in the middle, notched at apex and forming two large rounded lobes. *Ovipositor* short, thick, gently curved from the base, its apical valves lanceolate, acute at apex, with smooth margins.

*Length* of body 7.5 mm.; pronot. ♂ 4 mm., ♀ 2.5 mm.; post. fem. 5.5 mm.; ovipositor 4 mm.

*Range*.—CEYLON: Hakgala (type, Col. M.): Mousakande; Gammaduwa; Goatfell; Kandapola (Col. M.).

#### 174. *Directaotus henryi* (Chopard)

1928. *Cryptoptilum henryi* Chopard, *Spolia Zeyl.*, **14**, 203, figs. 11, 12. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 556.

♂: *Colour* rufous-brown, covered with brown and grey scales. *Head*: Frontal rostrum very wide, presenting a trace of a median furrow; frontal protuberance rather strongly projecting. Face and palpi brown; maxillary palpi with 4th joint much longer than 3rd and 5th; the latter scarcely longer than the 3rd, weakly enlarged at apex. Antennae very slender, yellowish with a few brown rings. *Pronotum* a little produced posteriorly, with posterior margin regularly rounded; lateral lobes with inferior margin blackish. *Abdomen* brown, covered with scales which form a few small black spots on each tergite; subgenital plate large, with posterior margin a little sinuated and slightly thickened, yellowish; paraprocts with a very short process, extending no farther than the apex of the subgenital plate. *Legs* short. Anterior and median femora covered with blackish and silver-grey scales; tibiae mostly blackish except at the apex which is yellowish; anterior ones with a small round tympanum on their internal face. Posterior femora stout, dark brown. Tegmina wholly concealed under pronotum.

*Length* of body 9 mm.; pronot. 4.5 mm.; post. fem. 6.5 mm.

A little larger than the preceding and differing in the shape of the maxillary palpi.

*Range*.—CEYLON: Horowupotana (type, B.M.): Kandy; Kanniyai; Trincomalee; Warahamankada (Col. M.).

**175. *Directaotus indicus* (Chopard)**

1928. *Cryptoptilum indicum* Chopard, *Rec. Ind. Mus.*, 30, 22, figs. 31, 37.

♂: *Colour* rufous-brown. *Head*: Occiput convex; vertex sloping; frontal rostrum short and wide, undivided, rounded at apex; face short, the facial protuberance feebly projecting, presenting two small impresses. Palpi dark brown; maxillary palpi with 4th joint longer than 3rd, 5th scarcely equal to 4th, feebly enlarged at apex, with superior and inferior margins nearly straight. Antennae extremely slender. *Pronotum* wide in front, rather strongly expanded posteriorly, with feebly convex sides. *Abdomen* brown, a little depressed; subgenital plate wide, rounded. *Legs* short, covered with brown scales. Anterior tibiae perforated on their internal face. Posterior femora short, rather thick; posterior tibiae flattened above, with serrulate margins. *Elytra* wholly concealed by the pronotum.

♀: *Pronotum* longer than wide, with concave anterior margin, sides feebly converging forwards. *Ovipositor* rather short, straight, with very narrow, acute apical valves.

*Length* of body 8 mm.; pronot. ♂ 4 mm., ♀ 2.5 mm.; post. fem. 5-5.5 mm.; ovipositor 3-3.2 mm.

*Range*.—INDIA: Travancore (Kerala): Cochin; Trichur (type, I.M.). Mysore: Nedungadu (P.M.).

**176. *Directaotus maindroni* (Chopard)**

(Fig. 125)

1928. *Cryptoptilum maindroni* Chopard, *Rec. Ind. Mus.*, 30, 23, figs. 32, 38.

♂: *Colour* dark brown, with grey and brown scales. *Head*: Frontal rostrum very broad, rounded, presenting an inconspicuous median ridge; facial protuberance rather strongly projecting. Palpi brown; 4th joint of maxillary palpi much longer than 3rd, the 5th relatively short and wide, triangular. Antennae very slender, yellowish, with a few brown rings. Eyes small, rounded; lateral ocelli visible near the antennal sockets, but exceedingly small. *Pronotum* slightly narrowing in front, produced backwards, but its posterior margin nearly straight; disk slightly convex, brown. *Abdomen* a little depressed, brown; paraprocts without process. *Legs* short; anterior and median tibiae with a small ring of yellowish scales, the anterior ones with a small, round tympanum near the base of internal face. Posterior femora rather long, not



very stout; tibiae slightly compressed, with two small yellowish rings near the base; metatarsi compressed, yellowish at base, serrulate. *Elytra* very short, visible only behind the median part of the posterior margin of pronotum.

♀: *Head* and *legs* as in male. *Pronotum* longer than wide, with anterior and posterior margins nearly straight, sides a little convex. *Ovipositor* short, a little curved, with apical valves rather long, lanceolate and acute.

*Length* of body ♂ 7 mm., ♀ 8 mm.; pronot. ♂ 3.5 mm., ♀ 2.5 mm.; post. fem. ♂ 5 mm., ♀ 5.5 mm.; ovipositor 3.5 mm.

The male of this species is recognizable by the shape of the pronotum (fig. 125), the female looks very much like the preceding but is readily distinguished by the shape of the palpi.

*Range*.—INDIA: Madras: Nilgiri Hills; Coonoor (type, P.M.).

### 177. *Derectaotus leucopygus* (Chopard)

1924. *Ornebius leucopygus* Chopard, *Rec. Ind. Mus.*, 26, 186, figs. 34-37.

♀: *Size* rather large. *Colour* dark brown. *Head* a little narrower than pronotum; frontal rostrum short, twice as broad as the first antennal joint. Palpi almost black, very pubescent; 4th joint of maxillary palpi longer than 3rd, equalling the 5th which is triangular with internal angle a little rounded. *Pronotum* a little wider than long, very feebly narrowing forwards and backwards; anterior margin concave, posterior one straight, sides weakly convex. *Abdomen* blackish-brown; 10th tergite and epiproct forming a triangular white plate, contrasting with the dark colour of the body. Cerci testaceous. *Legs*: Anterior and median femora testaceous with silvered scales, darkened at apex, with a few erect rufous bristles; tibiae brown with grey scales; anterior tibiae presenting a very small round tympanum near the base of internal face. Posterior femora stout, rather strongly dilated; tibiae short and a little curved, armed with fine denticles on the superior margins; external apical spurs short, the median a little longer than the other two; medio-internal spur twice as long as the superior which is a little shorter than the inferior one. *Ovipositor* rather short, straight, with apical valves narrow, lanceolate, acute.

*Length* of body 10.5 mm.; pronot. 3 mm.; post. fem. 6.3 mm.; post. tib. 4.8 mm.; ovipositor 3.5 mm.

Although the male of this species is unknown, it seems

evident that it is not an *Ornebius*, as it was described, but rather a *Derectaotus*.

*Range*.—INDIA: Orissa: Barkuda Island (type, I.M.).

### 178. *Derectaotus ceylonicus* (Chopard)

1928. *Ornebius ceylonicus* Chopard, *Rec. Ind. Mus.*, **30**, 23, figs. 34, 39.

1936. *Derectaotus ceylonicus* Chopard, *Ceyl. J. Sc.*, (B) **20**, 62.  
Sandraasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 556.

♀: Rather small. *Colour* very dark brown; abdomen and legs covered with scales. *Head* as wide as pronotum in front, with vertex a little flattened, sloping; rostrum wide but very short; frontal protuberance rounded, rather projecting, presenting a scarcely visible smooth median ridge. Maxillary palpi light, especially the two last joints, 5th almost as long as 4th, slightly widening at apex. Antennae very slender, with a few brown, somewhat nodular joints. Eyes large, rounded; ocelli very small, the anterior one not perceptible. *Pronotum* as long as wide, very slightly narrowing in front, anterior margin a little concave, posterior straight; disk weakly convex, brown. *Abdomen* brown, feebly enlarged in the middle; subgenital plate very short, rounded. Cerci rufous. *Legs* short, partly covered with brown scales. Anterior tibiae perforated with a small round tympanum at base of the internal face. Posterior femora rather strong, swollen; tibiae short, a little curved, provided with minute denticles on their superior margins; internal apical spurs long, especially the median one; external shorter than the internal, but presenting the same proportions; posterior metatarsi rather long, their superior margins armed with 7 or 8 denticles. *Ovipositor* very short, a little curved near the base, with apical valves lanceolate, smooth.

♂: *Pronotum* rather strongly produced backwards, feebly narrowing in front, with anterior margin concave, posterior margin regularly and moderately convex. Epiproct transverse with apical margin feebly concave, rounded angles; subgenital plate large, dark brown with two small yellow spots on the posterior margin. *Elytra* exceeding only very slightly beyond the posterior margin of pronotum, translucent with posterior margin feebly tinged with brown.

*Length* of body 7 mm.; pronot. ♂ 3 mm., ♀ 2.5 mm.; post. fem. 4 mm.; elytra ♂ 0.5 mm.; ovipositor 3 mm.

This species is very close to *indicus*, but the male differs from it and from the other *Derectaotus* by the posterior margin

of the pronotum moderately produced so that the elytra are feebly visible.

*Range*.—INDIA: Mysore: Nedungadu (Phil. M.). ♂  
CEYLON: Kandy (type, I.M.); Musakande; Gammaduwa (Col. M.).

### Genus GOTVENDIA Bolivar

1927. *Gotvandia* Bolivar, *Eos*, 3, 247.

*Type*.—*Gotvandia dispar* Bolivar.

*Range*.—Persia, W Pakistan.

General features as in the preceding genus, but elytra of the male almost completely freed from the pronotum, the posterior margin of which is almost straight.

### 179. *Gotvandia albipennis* n. sp.

*Holotype*: W Pakistan: Karachi (Saldiq, 17.VIII.57), ♂ (British Museum).

*Colour*: Dark brown, probably covered with scales in life. *Head* rather big, vertex sloping; frontal rostrum very wide, truncated at apex with rounded angles, very finely furrowed in the middle; face very short and wide. Eyes feebly protruding. Antennae very slender, yellowish with apex darkened and first joint brown. Palpi brown; 4th joint of maxillary palpi longer than 3rd and 5th, the latter moderately enlarged, feebly truncated at apex. *Pronotum* as long as wide posteriorly, narrowing somewhat in front; anterior margin rather strongly concave, posterior one very feebly convex; disk almost flat, uniformly brown; lateral lobes low, of the same colour as the disk, with inferior margin very feebly sinuate, angles rounded. *Abdomen* rather broad, depressed, dark brown with badly defined transverse rufous bands; epiproct small, yellowish. Cerci yellowish. *Legs* a little lighter in colour than the body, pubescent. Anterior and median femora somewhat lighter at apex; anterior tibiae perforated with a rather large oval tympanum at base of the internal face; tarsi long, the metatarsus compressed, a little longer than the other two joints together. Posterior femora rather strongly dilated at apex; tibiae rather short, widening at apex, with strongly denticulated margins; metatarsus rather strong, compressed, with superior margins denticulated. *Elytra* white, opaque, with a very fine golden pubescence; the left elytron overlapping the right one; mirror oblique; lateral field large, almost transparent with base white, opaque, presenting one single white vein.

*Length* of body 9 mm.; pronot. 3.1 mm.; post. fem. 4.2 mm.; elytra 1.5 mm.

Very close to the type of the genus; a little larger, with elytra wholly white; pronotum narrowing a little more in front.

### Genus ARACHNOCEPHALUS Costa

1855. *Arachnocephalus* Costa, *Fauna Nap.*, Grill., 41.

*Type*.—*Arachnocephalus vestitus* Costa.

*Range*.—South Europe, Africa, Southern Asia, Formosa, North Australia.

The species of this genus are completely apterous in both sexes and lack auditory foramina on the anterior tibiae.

### 180. *Arachnocephalus bugnioni* n. sp.

*Holotype*: Ceylon: Ambepussa (E. Bugnion), ♂ (Muséum Paris).

*Size* medium; general shape rather narrow and elongated. *Colouration* yellowish, feebly tinged with rufous, with whitish scales. *Head* as wide as pronotum in front, a little flattened above; frontal rostrum as wide as first antennal joint, finely furrowed; its base is limited by a rather deep furrow, in front of which two small depressions are visible; facial protuberance strongly projecting. *Eyes* feebly lengthened, slightly projecting. *Antennae* yellow with very faint brown rings. *Palpi* yellowish; the three last joints of the maxillary palpi nearly equal in length, the 5th one triangular. *Pronotum* a little longer than broad, with anterior margin feebly convex, sides parallel. *Abdomen* rather narrow, feebly depressed with parallel sides; paraprocts presenting a short, horizontal, straight process (it seems that the type is not quite mature so that the shape of this process may be slightly different in perfectly mature individuals). *Legs* yellow, pubescent. *Anterior tibiae* unperforated; *metatarsi* very short. *Posterior femora* rather long and moderately swollen at base; *posterior tibiae* much shorter than the femora, wide, with superior face flat, superior margins armed with 20–25 denticles; *external apical spurs* very short, the median one a little longer than the other two; *supero-internal spur* very short, the other two rather long, especially the median; *posterior metatarsi* compressed, rather strong, armed with 2 long apical spurs and 5 denticles on each superior margin.

*Length* of body 10.5 mm.; pronot. 3 mm.; post. fem. 6 mm.; post. tib. 3.8 mm.

This species is the only *Arachnocephalus* known from the Indian region; it seems rather close to *A. maritimus* Sauss., from Oceania.

Genus **PACHYORNEBIUS** n. gen.

*Type.*—*Pachyornebius crassus* n. sp.

Size relatively large; frontal rostrum more than twice as wide as the first antennal joint, neatly furrowed; pronotum convex, rather strongly narrowing in front. Anterior tibiae unperforated. Male unknown. Close to *Derectaotus*, but much stouter with unperforated anterior tibiae.

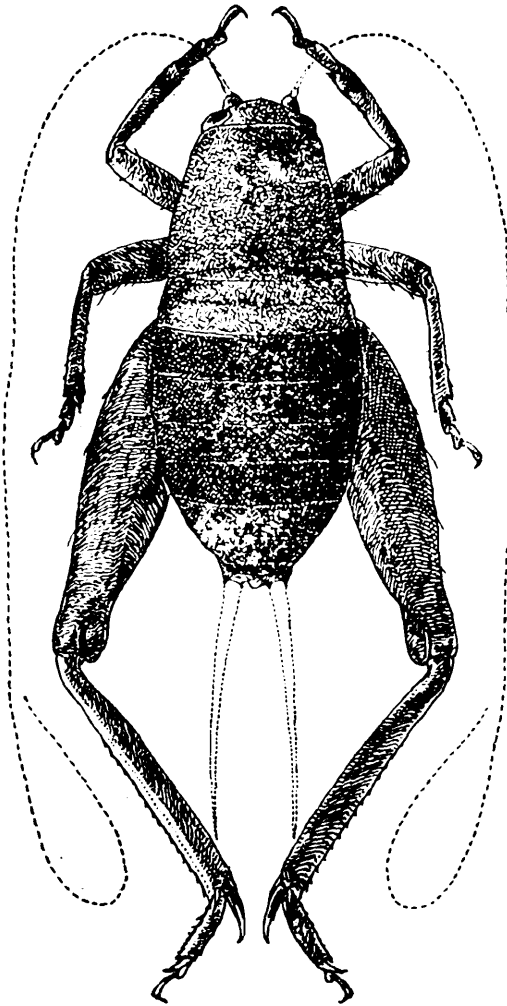


FIG. 130. *Pachyornebius crassus* n. sp., ♀ (×3·9).

181. **Pachyornebius crassus** n. sp.

(Fig. 130)

*Holotype*: Orissa: Chiriyā Island, Chilka Lake, ♀ (Paris Museum).

♀: Size rather large. Colour rufous-brown, partly covered with greyish scales. Head small, vertex sloping; frontal rostrum wide, with a fine furrow; cheeks covered with whitish scales. Antennae very slender, yellowish. Maxillary palpi rather long, brown; 5th joint a little longer than 3rd and 4th, very feebly enlarged at apex. Pronotum rather strongly convex, very slightly narrowing in front, with anterior and posterior margins almost straight; lateral lobes very low, covered with whitish scales, with feebly sinuated inferior margin, angles rounded. Abdomen darker than the pronotum, each tergite presenting a row of whitish scales along the posterior margin. Legs rather short, presenting a rather abundant pubescence mixed with greyish scales. Anterior and median tibiae presenting a weak brown ring before the apex; metatarsi as long as the other two joints together, carinated beneath. Posterior femora rather strongly dilated at base; tibiae somewhat enlarged towards the apex, with superior margins armed with rather strong, very close denticles (30 internal, 45 external); externo-apical spurs short and wide, the median longer than the other two; internal spurs a little longer than the external, the median twice as long as the inferior, extending almost to the middle of the metatarsus; which is moderately long, compressed, stout, armed above with 9 external, 6 internal denticles, the apical spurs rather short, strong; 3rd joint very small, slender. Ovipositor rather long, nearly straight; apical valves not at all enlarged, flat, feebly acute at apex, with smooth margins.

Length of body 11.5 mm.; pronot. 4.2 mm.; post. fem. 9 mm.; post. tib. 8 mm.; ovipositor 7.5 mm.

This species is remarkable for its stout aspect; it is one of the largest *Mogoplistidae* known.

### Genus MICRORNEBIUS n. gen.

*Type.*—*Micrornebius gracilicornis* n. sp.

Size very small; head rounded; forehead very wide between the antennae, forming with the face a continuous convex protuberance; last joint of maxillary palpi very short and wide. Anterior tibiae perforated on internal face; posterior metatarsi long but presenting a very fine denticulation. Elytra of male completely concealed beneath the pronotum.

### Key to the species of MICRORNEBIUS

Apical valves of ovipositor narrow but feebly acute; posterior metatarsi long but rather stout, with rather strong denticles.

*annandalei* (Chop.), p. 204

Apical valves of ovipositor very narrow and acute; posterior metatarsi very long and slender with scarcely visible denticles.

*gracilicornis* n. sp., p. 204

## 182. *Micronebius gracilicornis* n. sp.

*Holotype*: Java; Depok, ♂; *allotype*: Sibesi, ♀ (Paris Museum).

♂: *Size* very small. *Colour* testaceous more or less covered with brownish scales. *Head* brownish; vertex sloping; frontal rostrum very broad and feebly projecting. Face short, yellowish. Maxillary palpi short, chiefly the 5th joint, which is strongly widened, obliquely truncated at apex. Antennae very slender, composed of long and slender joints, presenting a few long hairs around their extremity. *Pronotum* strongly produced backwards but only feebly widened, with rounded posterior margin, only a little broader posteriorly than anteriorly. *Abdomen* brownish above, yellowish beneath; 10th tergite truncated; paraprocts presenting a very small, ovoid process. Cerci relatively short, feebly thickened. *Legs* rather short. Anterior tibiae perforated on their internal face; anterior and median metatarsi moderately lengthened. Posterior tibiae compressed, slightly curved, with short apical spurs, the median a little longer than the others on either side; posterior metatarsi long, compressed, with very fine, scarcely visible denticles on the superior margins. *Elytra* perfectly developed but completely concealed under the pronotum.

♀: *Head* and *legs* as in the male. *Pronotum* longer than wide, truncated posteriorly, feebly narrowing in front, with very feebly convex anterior margin. *Ovipositor* short, a little curved, with apical valves long, quite flat, provided with a few long bristles.

*Length* of body 4.5–5 mm.; pronot. ♂ 3.4 mm., ♀ 1.5 mm.; post. fem. 3 mm.; ovipositor 2 mm.

*Range*.—MALAYA: Kuala Lumpur; Fraser's Hill (P.M.).

## 183. *Micronebius annandalei* (Chopard)

(Figs. 123, 126 and 127)

1924. *Ornebius annandalei* Chopard, *Rec. Ind. Mus.*, 26, 187, figs. 38–41.

♀: *Size* very small. *Colour* yellowish covered with silvery grey scales, forming on the legs somewhat darker stripes. *Head* large; vertex strongly convex, very wide between the

eyes (fig. 126); these are large, formed of big facets; frontal protuberance moderately projecting, undivided, separated from the face by a small furrow. Palpi greyish; last joint of the maxillary palpi very short and wide (fig. 123). *Pronotum* convex, with straight anterior and posterior margins, sides slightly convex near the middle; lateral lobes a little high, with inferior margin straight. *Abdomen* slightly dilated in the middle; 10th tergite short; epiproct triangular, rounded at apex; subgenital plate very large, triangular, subacute and translucent at apex. *Legs* indistinctly striped with brown. Anterior tibiae provided with a large round tympanum near the base of the internal face, almost on the upper surface. Posterior femora short, very wide; tibiae brown with two yellowish stripes, slightly curved; superior margins armed with very small denticles; apex with 6 very short whitish spurs, the internal ones somewhat longer than the external, the median spur longer than the two others on either side; tarsi rather long, the metatarsus very long, greyish except at apex, with two rows of small denticles above and two short apical spurs (fig. 127). *Ovipositor* short, very slightly curved upwards, its apical valves scarcely enlarged, smooth, little acute at apex.

*Length* of body 4 mm.; post. fem. 2.5 mm.; ovipositor 1.4 mm.

This species has been found with the ant *Acropyga acutiventris* but does not seem to be a true myrmecophilous insect.

*Range*.—INDIA: Orissa: Barkuda Island (type, I.M.).

### Genus CYCLOPTILOIDES Sjöstedt

1910. *Cycloptiloides* Sjöstedt, *Kilimandjaro-Meru Exp.*, 3, 110.

*Type*.—*Cycloptiloides meruensis* Sjöstedt.

*Range*.—Tropical Africa, South Asia, South America.

Small size; both sexes apterous. Head somewhat flattened; frontal rostrum wider than first antennal joint, scarcely furrowed. Pronotum somewhat produced backwards in the male. Anterior tibiae perforated on the internal face; posterior metatarsi very long, without denticles on the superior margins. Paraprocts with a process.

### 184. *Cycloptiloides orientalis* Chopard

(Fig. 121)

1925. *Cycloptiloides orientalis* Chopard, *Ann. Soc. ent. Fr.*, 94, 301, figs. 19–24. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 137. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 60.



1925. *Cycloptiloides ceylonicus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 520, figs. 13; 14.

♂: *Size* small. *Colour* rufous with brown scales. *Head* a little flattened; frontal rostrum very wide, forming a big, rounded protuberance, neither furrowed in the middle nor separated from the vertex at base. Maxillary palpi with 4th joint slender, longer than 3rd, 5th triangular, not very wide, and obliquely truncated at apex. *Pronotum* very slightly narrowing in front, rounded posteriorly, its disk rather convex. *Abdomen* rufous; 10th tergite truncated and a little notched in the middle at apex; paraprocts showing a process vertically erected along the epiproct, not reaching up to its anterior margin. *Legs* rufous, the femora darkened at apex. Anterior tibiae provided near the base with a small round tympanum. Posterior tibiae short, a little curved, with yellowish apical spurs, the intermediate one on each side longer than the other two, the superior ones subequal in length, the infero-internal longer than the external. Posterior metatarsi very long, slender, armed with scarcely visible spinules lost in the pubescence (fig. 121). *Elytra* completely hidden by the pronotum.

♀: *Pronotum* a little longer than wide, with anterior and posterior margins straight, narrowing a little in front. *Ovipositor* rather short, almost straight, with apical valves feebly enlarged, presenting a row of stiff bristles, the superior ones bearing along the inferior margin a row of very small tubercles, each provided with a hair.

*Length* of body 5-5.5 mm.; pronot. ♂ 2.5-2.7 mm., ♀ 1.9 mm.; post. fem. ♂ 3.5 mm., ♀ 4 mm.; ovipositor 2.5 mm.

*Range*.—INDIA: Assam: Ledo (Phil. M.). CEYLON: Peradeniya (type of *ceyonicus*): Mousakande; Gammaduwa; Battaramulla (Col. M.). MALAYA: Selangor: Kuala Lumpur (Sel. M.). SUMATRA (type of *orientalis*).

## 5. Family SCLEROPTERIDAE

Small species, with glabrous body; facial shield very wide, flattened, somewhat prominent between the antennae. Elytra well developed in both sexes, more or less corneous in the female; mirror perfect in the male. This family includes two genera which are united only by the shape of the facial shield, the armature of the posterior tibiae being quite different.

*Key to the genera of SCLEROPTERIDAE*

Posterior tibiae armed with three spines on each margin; head depressed; edges of the pronotum carinated.

*Acanthoplistus* Sauss.,  
p. 207

Posterior tibiae serrulated, without spines; head rounded; pronotum long, its edges rounded.

*Scleropterus* Haan, p. 210

**Genus ACANTHOPLISTUS Saussure**

1877. *Acanthoplistus* Saussure, *Mém. Soc. Genève*, **25**, 318.

*Type*.—*Acanthoplistus carinatus* Saussure.

*Range*.—Tropical Africa, South Asia.

Head wide, strongly depressed; forehead very wide, directly followed by the face. Pronotum square, with anterior margin concave, posterior margin straight; disk flat with carinated edges. Legs short, compressed; anterior tibiae presenting a large, oval tympanum on external face, a smaller one on the internal face. Posterior femora stout; posterior tibiae short, armed with 3 spines on each margin. Elytra of male provided with a well-developed mirror, divided by a vein.

*Key to the species of ACANTHOPLISTUS*

- |   |   |                                |
|---|---|--------------------------------|
| 1 | Shape narrow; elytra presenting a yellow spot at base. . . . .  | <i>maculatus</i> Chop., p. 209 |
|   | Shape wider; elytra without basal spot. . . . .   | 2                              |
| 2 | Size larger (14.5 mm.); insertion of the lateral lobes of the pronotum feebly angular; posterior femora with a large yellow spot. . . . . | <i>femoratus</i> Chop., p. 208 |
|   | Size smaller (8 mm.); insertion of the lateral lobes of the pronotum neatly carinated; posterior femora without yellow spot. . . . .      | <i>birmanus</i> Sauss., p. 207 |

**185. *Acanthoplistus birmanus* Saussure**

1877. *Acanthoplistus birmanus* Saussure, *Mém. Soc. Genève*, **25**, 322, pl. 15 (XXXI), fig. 2. Brunner, 1893, *Ann. Mus. Genova*, **33**, 202. Chopard, 1921, *Bull. Raffles. Mus.*, No. 6, 136. Chopard, 1933, *Rev. Suisse. Zool.*, **40**, 165.

*Size* small, rather depressed. *Colour* black. *Head* a little flattened, finely punctated with three almost smooth longitudinal bands; frontal rostrum much wider than the first joint of antennae, with feebly convergent sides. *Face* short,

smooth, rufous-brown. Antennae and palpi black; maxillary palpi short with 5th joint strongly widened. *Pronotum* feebly narrowing in front, with anterior margin concave, posterior one straight; disk flat, finely and regularly punctured, carinated on the lateral edges which are lined; lateral lobes with inferior margin straight, rounded angles, presenting a punctuation still more close and regular than that of the disk. *Abdomen* black; cerci yellow. *Legs*: Anterior and median femora dark brown; tibiae and tarsi yellow; anterior tibiae presenting a large oval external tympanum and a narrow one on the internal face. Posterior femora short and thick, black with yellow extremity; tibiae shorter than the femora, yellow as well as the tarsi.

♂: *Elytra* extending almost to the apex of abdomen, smoky, translucent; mirror lozenge-shaped, rounded posteriorly, divided by a strongly curved vein; 2 oblique veins; apical field short, with a few large cells; lateral field blackish with 5 parallel, plain veins. Wings usually short; yet, a macropterous form should exist according to Brunner.

♀: *Elytra* black, presenting in the dorsal field 5 close, parallel veins, the second of which is furcate near the base; lateral field as in the male. *Ovipositor* short, yellow, with apical valves beak-like, separated from the stem by a deep notch.

*Length* of body ♂ 8-9 mm., ♀ 10 mm.; pronot. ♂ 2-2.1 mm., ♀ 2.3 mm.; post. fem. ♂ 4.2 mm., ♀ 4.8 mm.; elytra 4.2-4.8 mm.; ovipositor 3 mm.

*Range*.—INDIA: Mysore: Valparai (P.M.). Madras: Nilgiris; Hill Grove (G.M.). W Himalaya: Naukuchia Tal; Kumaun (P.M.). BURMA: Carin Chebá (type, Go. M.). PENINSULAR SIAM: Trang (Sel. M.). TONKIN. ANNAM.

## 186. *Acanthoplistus femoratus* Chopard

1931. *Acanthoplistus femoratus* Chopard, *Bull. Raffles Mus.*, No. 6, 135, fig. 4A.

♀: *Size* rather large for the genus. *Colour* blackish with a large yellow spot on the posterior femora; nearly glabrous. *Head* black; forehead almost flat, rostrum rather long, with slightly converging sides, as wide as first antennal joint. Face short, rufous. Maxillary palpi brownish, with large, dilated, subsecuriform 5th joint. Antennae rather thick, brown with lighter first joint. *Pronotum* nearly square, with anterior margin concave, posterior one faintly convex, both of them lined; sides feebly sinuated, almost parallel; disk black,

flat, slightly embossed and finely shagreened; lateral lobes black, their insertion being subangular in its posterior part only, inferior margin rather strongly ascending posteriorly. *Abdomen* rufous-brown; 10th tergite very short and wide, truncated at apex. Anterior and median *legs* rather long and stout, blackish-brown with a light rufous pubescence; anterior tibiae perforated with a rather large external oval tympanum. Posterior femora very stout, short, blackish-brown with a large yellow spot situated a little behind the middle and occupying the superior part without extending down either to the internal or to the external inferior margins; knees brownish; posterior tibiae rather short, blackish-brown, armed with 3 small rufous spines on each margin; apical spurs rufous, the external ones very short, the median being, however, a little longer than the other two; infero-internal spur very short, median and superior ones not very long but very thick, subequal in length. *Elytra* brownish, a little thickened, covering two-thirds only of the abdomen, with rounded extremity; dorsal field occupied by 3 veins and the radial which is a little projecting, trifurcated; transverse veinlets irregular and few in number; lateral field presenting 6 plain, parallel, close veins. Wings shorter than the elytra. *Ovipositor* rather short, a little curved upwards, its apical valves lanceolate, the superior ones narrow, the inferior ones very faintly crenulated beneath.

*Length* of body 14.5 mm.; pronot. 3.5 mm.; post. fem. 8.5 mm.; post. tib. 6 mm.; elytra 6.5 mm.; ovipositor 6 mm.

This species differs from the preceding not only by its colouration but by its larger size and the ill-defined angulated insertion of lateral lobes of the pronotum.

*Range*.—MALAYA: Selangor; The Gap; Pahang boundary (type, Sel. M.).

## 187. *Acanthoplistus maculatus* Chopard

1927. *Acanthoplistus maculatus* Chopard, *Ann. Soc. ent. Fr.*, 96, 159, fig. 17.

*Size* small; rather long and narrow. *Colour* black with a yellow spot on the base of the elytra. *Head* a little wider than the pronotum; occiput and vertex presenting four strongly punctated bands between which the surface is smooth and shining; frontal rostrum very short, rather broad with angular margins. Face short, rufous, smooth. Palpi black; 4th joint of the maxillary palpi equalling the 3rd, 5th a little larger, triangular. Antennae black, rather thick,

pubescent. *Pronotum* a little narrowing in front, with anterior margin concave, posterior margin straight, limit between the disk and the lateral lobes angular; disk feebly convex, coarsely punctated, except the piriform impresses which are smooth; lateral lobes with inferior margin strongly ascending backwards, anterior angle rounded; surface punctated. *Abdomen* brownish. *Cerci* brown with light base. *Median legs* yellow (anterior and posterior legs wanting in the type). *Elytra* extending to the apex of abdomen, black with bluish reflection and presenting a very neat yellow spot at base; lateral field presenting 6 parallel, close, protruding veins, the 4th of which is furcate near the base; transverse veinlets scarce except at base where they form an irregular reticulation; lateral field with 4 regularly spaced, parallel veins. *Wings* long, whitish. *Ovipositor* slender with apical valves small, acute.

*Length* of body 7 mm.; length with wings 12 mm.; elytra 5 mm.; ovipositor 3.5 mm. Distinct by its narrow shape and the yellow spot of the elytra.

*Range*.—S. SIAM (type, B.M.).

## Genus SCLEROPTERUS Haan

1842. *Scleropterus* Haan, *Temminck Verhandl. Orth.*, 232.

*Type*.—*Gryllus* (*Scleropterus*) *coriaceus* Haan.

*Range*—South Asia, Japan.

Head small, globular; interantennal space very wide. *Pronotum* rather long, narrowing in front; disk convex, punctated, edges rounded. *Anterior tibiae* perforated; *posterior tibiae* without spines but with superior margins serrulated. *Elytra* of male with mirror large, divided by an angulate vein; number of oblique veins variable; elytra of female corneous with longitudinal veins.

### Key to the species of SCLEROPTERUS

- |   |   |                                    |
|---|---|------------------------------------|
| 1 | Elytra of male with 2 oblique veins.  | <i>variolosus</i> Chop., p. 213    |
|   | Elytra of male with 3–6 oblique veins.  | 2                                  |
| 2 | Elytra of male with 5–6 oblique veins; mirror much wider than long; spaces between the veins of the female elytra closely reticulated and punctated.                        | <i>punctatus</i> Brun., p. 212     |
|   | Elytra of male with 3 oblique veins; mirror scarcely wider than long; spaces between the veins of the female elytra filled with very close and regular transverse veinlets. | .. <i>coriaceus</i> (Haan), p. 211 |

**188. *Scleropterus coriaceus* (Haan)**

(Fig. 131)

1842. *Gryllus* (*Scleropterus*) *coriaceus* Haan, *Temminck Verhandl. Orth.*, 232, pl. 20, fig. 7.  
1877. *Scleropterus coriaceus* Saussure, *Mém. Soc. Genève*, 25, 324, pl. 15 (XXX), figs. 1-2, 2a. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 136.  
1893. *Scleropterus punctatus* Brunner, *Ann. Mus. Genova*, 33, 204, pl. 6, fig. 73a (♂).

*Colour* black. *Head* and *pronotum* finely punctated; frontal rostrum twice as wide as first antennal joint. *Antennae* black with a wide whitish ring in the middle. *Pronotum* longer than broad, narrowing in front; edges rounded; lateral lobes with feebly arcuated inferior margin, posterior angle rounded. *Legs*: Anterior and median legs yellowish,

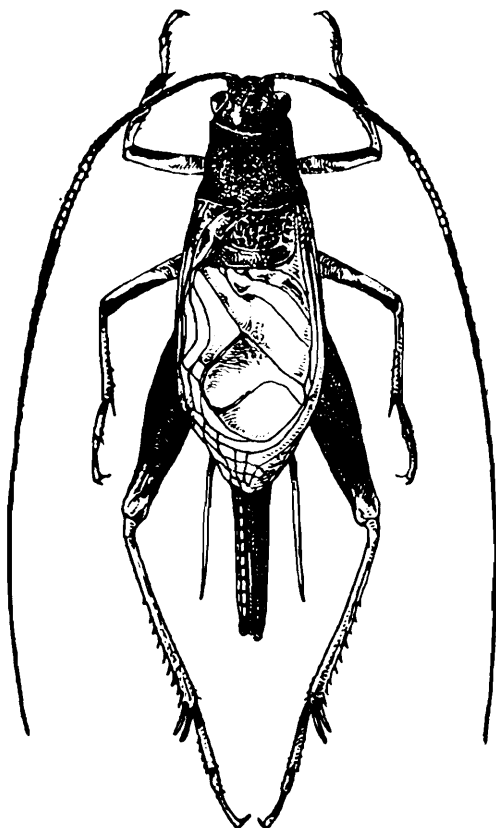


FIG. 131. *Scleropterus coriaceus* (Haan), ♂ (×3.9).

the femora darkened laterally; tarsi brownish. Posterior femora short and rather strong, blackish with apex yellowish; posterior tibiae short, testaceous, bearing on the external margin about 12 small denticles, the internal margin with

6 denticles, a little longer; posterior metatarsi long, compressed, with superior margins serrulate.

♂: *Elytra* extending to the apex of abdomen, light brownish, translucent; mirror scarcely wider than long, divided by a curved vein; 3 oblique veins; apical field rather long, presenting four rows of elongate cells.

♀: *Elytra* a little shorter than the abdomen, black; dorsal field presenting 5 straight, parallel veins; the space between these veins is filled by very close, regularly parallel, transverse veinlets. *Ovipositor* rather slender, feebly curved upwards, with apical valves small, acute; inferior margin of the superior valves provided with 6-7 rather strong, rounded teeth.

*Length* of body ♂ 9.5-10.5 mm., ♀ 11.5 mm.; pronot. ♂ 2.9-3 mm., ♀ 3.2 mm.; post. fem. ♂ 5.8-6 mm., ♀ 7.2 mm.; elytra ♂ 7-7.2 mm., ♀ 8.3 mm.; ovipositor 5 mm.

The macropterous form seems rather common in this species.

*Range*.—INDIA: Travancore (Kerala): Cochin; Parambikulam (B.M.). BURMA: Toungoo (Phil. M.). SIAM. MALAYA: Selangor: Kuala Lumpur (P.M.). SUMATRA: Carey Island. JAVA (type).

## 189. *Scleropterus punctatus* Brunner

1893. *Scleropterus punctatus* Brunner, *Ann. Mus. Genova*, 33, 204, pl. 6, fig. 73b (♀ non ♂). Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 292.

General *shape, size and colour* similar to the preceding. ♂: *Pronotum* in male depressed, narrowing in front. *Elytra* extending to the apex of abdomen; mirror much wider than long, divided; apical field very short, with two rows of cells; 5 or 6 oblique veins. ♀: *Pronotum* of female wide, finely carinated in the middle. *Elytra* rather short, corneous, space between the veins filled by very irregular transverse veinlets, forming small impressed areolae. In both sexes, the posterior *legs* are shorter than in *coriaceus*. *Ovipositor* with apical valves presenting 10 teeth, smaller than in *coriaceus*.

*Length* of body ♂ 9 mm., ♀ 9-10.5 mm.; pronot. 2.6-3.1 mm.; post. fem. 5-5.5 mm.; elytra ♂ 5.8 mm., ♀ 3.5 mm.; ovipositor 4.5-5.5 mm.

The male of this species is very similar to the preceding, from which it differs chiefly in the number of the oblique veins; the female is much easier to distinguish by the aspect given to the elytra by the irregular transverse veinlets. The

macropterous form seems scarce in this species; I have seen only one specimen of it.

*Range*.—INDIA: Mysore: Coorg; Sidapur (B.M.). Assam: Ledo (Phil. M.). BURMA (type, Go. M.). FORMOSA. JAPAN. ANNAM. VIETNAM. SUMATRA.

## 190. *Scleropterus variolosus* Chopard

1933. *Scleropterus variolosus* Chopard, *Stylops*, 2, 118, fig. 5.

♂: Very close to *S. coriaceus* but smaller. *Head* and *pronotum* as in the aforesaid species. *Antennae* black with a wide yellow ring a little beyond the base. *Abdomen* black. *Anterior and median femora* blackish-brown with yellowish base; *tibiae* testaceous, the anterior ones perforated on both faces. *Posterior femora* shorter and thicker than in *coriaceus*, blackish with yellowish apex; *posterior tibiae* yellowish with external margin rather finely and densely serrulate, internal margin bearing about 6 very small spines. *Elytra* smoky, scarcely extending to the apex of abdomen; mirror transverse, divided or not, with antero-external margin much longer than the antero-internal one; 2 oblique veins only; apical field very short; lateral field black; presenting 4 veins which are more regularly distant than in *coriaceus*. *Wings* short.

Female unknown.

*Length* of body 7.5 mm.; post. fem. 4 mm.; elytra 4.5 mm.

*Range*.—INDIA: West Bengal: Belgachia (type, B.M.). MALAYA: Selangor: Kuala Lumpur (C.I.E.).

## 6. Family PENTACENTRIDAE

This family is composed of insects of very differing shapes but which can be united by the shape of the head with sloping forehead and antennae inserted beneath the middle of the face.

### *Key to the genera of PENTACENTRIDAE*

- |   |  |                                       |
|---|--|---------------------------------------|
| 1 | General shape long and narrow; elytral venation similar in both sexes. . . . .   | 2                                     |
|   | General shape broad; pronotum and dorsal field of elytra more or less depressed; elytra of male with a more or less complete mirror. . . . . | 3                                     |
| 2 | General shape somewhat depressed; pronotum and forehead flattened.   | <i>Homalogryllus</i> Chop.,<br>p. 214 |
|   | General shape not at all depressed; pronotum convex; head rounded.   | <i>Pentacentrus</i> Sauss.,<br>p. 220 |



- 3 General shape as in the *Trigonidiidae*;  
elytra thick, corneous, with pro-  
jecting veins; mirror incomplete. *Lissotrachelus* Brun.,  
p. 215
- General shape resembling the *Eneopterinae*; elytra of male with complete  
mirror. *Pendleburyella* n. gen.,  
p. 217

### Genus HOMALOGRYLLUS Chopard

1925. *Homalogryllus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 523.

*Type*.—*Homalogryllus depressus* Chopard.

*Range*.—Ceylon.

General shape depressed with flattened head, pronotum wide, depressed, wings extending only a little beyond elytra. Elytra of male with straight parallel veins.

#### 191. *Homalogryllus depressus* Chopard

1925. *Homalogryllus depressus* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 523, fig. 21. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 64. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 557.

♂: *Size* medium. *Colour* testaceous-brown. *Head* a little wider than pronotum, depressed above; frontal rostrum short, slightly sloping, as wide as first antennal joint, adorned with three small brown stripes. Face exceedingly short, triangular, yellowish with a small λ-shaped brown figure on the facial shield. Palpi testaceous, a little darkened on their external face; maxillary palpi short, with 4th joint equalling the 3rd, a little dilated, 5th scarcely longer, forming an equilateral triangle. Eyes rather big but only slightly projecting; ocelli very small. Antennae inserted very low, near the anterior angle of the eyes, brownish with a few yellowish rings. *Pronotum* flattened, wide, yellowish-brown, with anterior margin straight, posterior one rather strongly sinuous; lateral lobes low, a little darkened, with inferior margin ascending posteriorly. *Abdomen* yellowish above and laterally, blackish beneath; subgenital plate long, navicular. Cerci long, yellowish. *Legs* short, yellowish, a little mottled with brown. Anterior tibiae presenting two rather undefined brown rings, their internal face provided with a rather small oval tympanum. Posterior femora rather weakly and regularly swollen, with no slender apical part; posterior tibiae very short, armed at apex with 2 or 3 very small spines, and presenting in their basal part about 12 denticles; external

**apical spurs** short, especially the superior one which is spine-like, the median twice as long as the inferior; two internal spurs only, rather long, subequal; posterior metatarsi rather long, compressed, armed on each margin with 5 or 6 denticles. *Elytra* rather narrow, pale brown, translucent, with the veins a little darker; lateral field black, with 4 longitudinal veins; dorsal field presenting 4 longitudinal, parallel veins a little distant from one another; transverse veinlets scarce, forming large, long, rather regular areolae. Wings extending a little beyond the elytra.

*Length* of body 7 mm.; length with wings 9.5 mm.; pronot. 1.5 mm.; post. fem. 5 mm.; post. tib. 3 mm.; elytra 6 mm.

The type is the only specimen known of this remarkable species.

*Range*.—CEYLON: Trincomalee (type, B.M.).

## Genus LISSOTRACHELUS Brunner

1893. *Lissotrachelus* Brunner, *Ann. Mus. Genova*, 33, 205.

*Type*.—*Lissotrachelus ferrugineonotatus* Brunner.

*Range*.—Burma, Malaya, Borneo.

Body smooth, shining. Head depressed; frontal rostrum narrow; antennae inserted low beneath the eyes. Pronotum flat above. Posterior tibiae rounded, armed on each margin with 3 spines. Elytra a little shorter than the abdomen, provided in the male with a feebly distinct mirror.

### Key to the species of LISSOTRACHELUS

- |   |  |  |   |
|---|--|--|---|
| 1 | Elytra wholly black. . . . .                         | <i>ater</i> Brun., p. 217              | 2 |
|   | Elytra at least partly ferruginous. . . . .          |  |   |
| 2 | Body chestnut-brown; elytra ferruginous. . . . .     | <i>castaneus</i> Brun., p. 216         |   |
|   | Body black; elytra ferruginous at base only. . . . . | <i>ferrugineonotatus</i> Brun., p. 216 |   |

## 192. *Lissotrachelus ferrugineonotatus* Brunner

(Fig. 132)

1893. *Lissotrachelus ferrugineonotatus* Brunner, *Ann. Mus. Genova*, 33, 205, pl. 6, fig. 74.

♀: Black, shining. Antennae ferruginous with three first joints black. *Pronotum* shining, glabrous. *Elytra* rather short, black with a large ferruginous spot occupying half the length between the radial and cubital veins; dorsal field with 3

almost straight veins and very few transverse veinlets near the apex. Wings variable in length. *Legs*: Posterior femora rufous at apex; posterior tibiae blackish with ferruginous base and apex. *Ovipositor* ferruginous with apical valves small, very acute and very finely tuberculated.

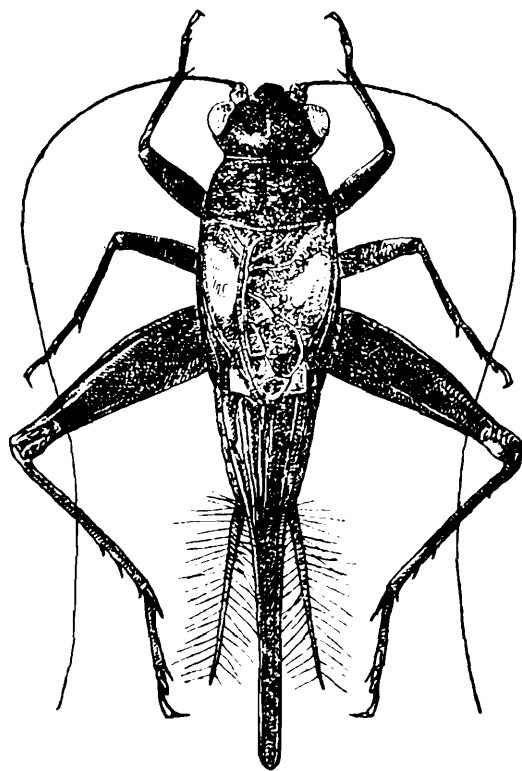


FIG. 132. *Lissotrachelus ferrugineonotatus* Brun., ♂ ( $\times 3.9$ ).

*Length* of body 6–7 mm.; length with wings (macropterous form) 9 mm.; post. fem. 4 mm.; elytra 3–3.2 mm.; ovipositor 2.6 mm.

*Range*.—BURMA: Carin Ghecu (type, Go. M.). MALACCA (P.M.). PHILIPPINE ISLANDS.

### 193. *Lissotrachelus castaneus* Brunner

1893. *Lissotrachelus castaneus* Brunner, *Ann. Mus. Genova*, 33, 205.

♀: *Colour* chestnut-brown. *Head*: Antennae with basal half brown, apical part pale. *Pronotum* provided with scarce, long hairs. *Elytra* wholly ferruginous brown.

Wings caudate (after Brunner).

This species is perhaps a form of the preceding.

*Length* of body 6.4 mm.; pronot. 1.5 mm.; elytra 4 mm.; ovipositor 2 mm.

*Range*.—BURMA: Rangoon (type, Go. M.).

194. *Lissotrachelus ater* Brunner

1893. *Lissotrachelus ater* Brunner, *Ann. Mus. Genova*, 33, 206.  
Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 135.  
1925. *Lissotrachelus niger* (err.) Chopard, *Ann. Soc. ent. Fr.*, 94,  
303, fig. 25.

*Colour* black or dark brown. *Head* broader than the pronotum in front; occiput strongly convex, vertex sloping; frontal rostrum very short, as wide as the first antennal joint; face very short, shining brown. Antennae inserted very low near the inferior angle of the eyes; three first joints brown, shining, glabrous, the following ones yellowish, very pubescent. Palpi brown; 4th joint of the maxillary palpi very short, 5th triangular. *Pronotum* wide, strongly narrowing in front; disk flat; lateral lobes with inferior margin straight, angles rounded. *Abdomen* black, shining. *Cerci* rufous. *Legs* brown. Anterior and median femora rather thick; tibiae rather short, the anterior ones unperforated. Posterior femora short, brown with light apex; posterior tibiae armed with 3 small spines on each margin; 3 internal apical spurs, the superior longer than the median; 2 short external spurs; posterior metatarsi long, rounded, unarmed above.

♂: *Elytra* a little shorter than the abdomen, black, shining, with feebly marked veins; mirror formed by a large cell, feebly differentiated; diagonal vein very short; no oblique vein; chords indistinct, the mirror being bordered by a few large cells; lateral field high, wide at apex so that the dorsal field is narrowed posteriorly. Wings usually short, but macropterous individuals are occasionally found.

♀: *Elytra* rather short, black; dorsal field presenting 4 almost straight veins; transverse veinlets very scarce and present only towards the apex. *Ovipositor* ferruginous, with small acute apical valves.

*Length* of body 5.8–7 mm.; pronot. 1.5 mm.; post. fem. 4 mm.; elytra 3.3 mm.; ovipositor 3 mm.

*Range*.—SUMATRA. MALAYA: Perak: Jor Camp (Sel. M.). BORNEO (type, Go. M.). PENINSULAR SIAM. VIETNAM.

## Genus PENDLEBURYELLA n. gen.

*Type*.—*Pendleburyella testacea* n. sp.

*Range*.—Malaya.

Size small. Head rounded; vertex sloping; frontal rostrum very broad. Antennae inserted very low on the face. Anterior tibiae perforated on both faces; posterior tibiae serrulated and armed with three spines on each margin, presenting

two internal apical spurs only. Elytra of male with a mirror divided in the middle, 3 oblique veins; lateral field with numerous veins; elytra of the female with parallel veins. Ovipositor with apical valves lanceolate, smooth.

*Key to the species of PENDLEBURYELLA*

Mirror of the male elytra longer than broad, angulate forwards. . . . .	<i>testacea</i> n. sp., p. 218
Mirror of the male elytra as broad as long, almost rounded anteriorly	<i>vicina</i> n. sp., p. 219

**195. *Pendleburyella testacea* n. sp.**

*Holotype*: Malaya: Selangor, Bukit Kutu, 2,500 ft. (H. M. Pendlebury, 14.IX.1938), ♂ (Selangor Museum).

♂: *Size* small. *Colour* rather uniformly testaceous-brown. *Head* a little wider than the pronotum in front, shining, brown with 5 lighter longitudinal bands; vertex sloping, finely punctated; frontal rostrum short, a little narrower than the first antennal joint. Face yellow. Antennae inserted very low, rather thick, brown with first joint yellowish. Palpi brown; 4th joint of maxillary palpi a little shorter than 3rd, 5th triangular. Eyes feebly protruding, a little lengthened vertically; ocelli small, disposed in a triangle. *Pronotum* transverse, a little narrowing in front, with anterior margin straight, posterior margin feebly convex; disk almost flat, rufo-testaceous with lighter piriform impresses, provided with long brown bristles; lateral lobes yellowish-brown, with inferior margin feebly ascending posteriorly, anterior angle much rounded. *Abdomen* rufous-brown, pubescent. *Legs* of the same colour as the body. Anterior tibiae rather strongly dilated at base, perforated with large, oval tympana; tarsi nearly as long as the tibia, the metatarsus longer than the other two joints together. Median legs longer than the anterior ones, particularly the tibiae. Posterior femora long and narrow; posterior tibiae serrulated and armed with 3 spines on each margin; 3 external apical spurs, of which the median is the longest; 2 internal spurs, rather long, subequal in length; metatarsi long, compressed, denticulated on both margins. *Elytra* long and rather narrow, very light brown, translucent; mirror longer than wide, narrowing a little in front, with anterior angle a right angle; diagonal vein and chords short, the first chord angulate and united to the mirror by a veinlet; 3 oblique veins, two of which long, parallel, a little sinuated, emerging from the base of the stridulating vein, and one, much shorter, almost in the angle; apical field nearly

transparent; *Sc.* bearing 5 parallel branches; lateral field short, presenting only a few large cells. Wings much longer than the elytra.

♀ (*Allotype*: N. Borneo, Bettotan, Selangor Museum): A little larger than the male, presenting the same general shape and colour. *Elytra* long, rather narrow; dorsal field with 5 almost straight, regularly spaced veins; lateral field presenting 5 veins, the *Sc.* being plain; transverse veinlets scarce. Wings long. *Ovipositor* rather short, feebly curved, with apical valves small, lanceolate, smooth.

*Length* of body 8 mm.; length with wings ♂ 13.5 mm., ♀ 12 mm.; post. fem. 5 mm.; elytra ♂ 7.4 mm., ♀ 6 mm.; ovipositor 5 mm.

196. *Pendleburyella vicina* n. sp.

(Fig. 133)

*Holotype*: Malaya: Selangor, Kuala Lumpur (H. M. Pendlebury, 13.IX.1932), ♂ (Selangor Museum).

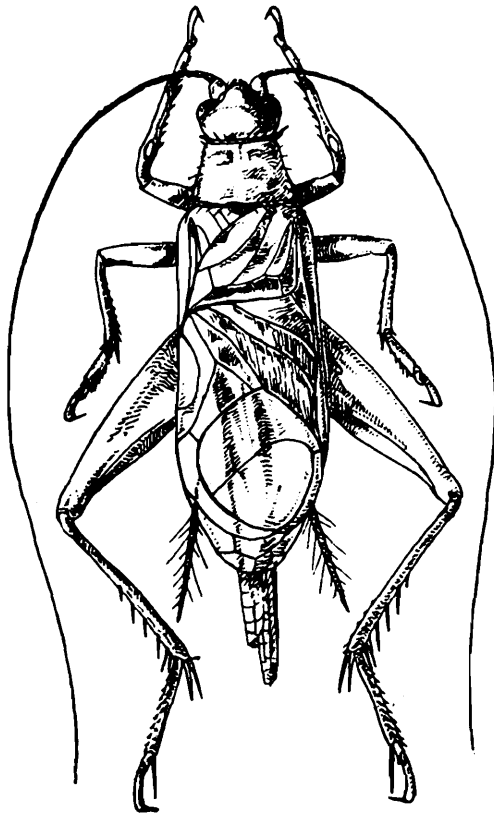


FIG. 133. *Pendleburyella vicina* n. sp., ♂ ( $\times 6.4$ ).

Very close to the preceding, a little smaller; last joint of the maxillary palpi not so wide at apex; armature of the legs

similar. Elytral mirror almost as wide as long, nearly rounded anteriorly; apical field still more reduced and apex of the elytra more rounded. Wings overreaching the elytra only slightly.

*Length* of body 7 mm.; length with wings 10 mm.; post. fem. 4.5 mm.; elytra 6 mm.

### Genus PENTACENTRUS Saussure

1878. *Pentacentrus* Saussure, *Mém. Soc. Genève*, 25, 399.

*Type*.—*Pentacentrus pulchellus* Saussure.

*Range*.—Seychelle Islands, Ceylon, Burma, Malaya, Malay Archipelago, Formosa, Philippine Islands, New Guinea, Australia.

General shape long and narrow; vertex sloping; frontal rostrum almost absent; face short; antennae inserted beneath the middle of the face. Elytra long and narrow, with longitudinal veins; there is no mirror in the male, but sometimes the stridulating vein is visible. Legs short; posterior tibiae armed with three short spines on each margin; five apical spurs, 3 external and 2 internal.

#### *Key to the species of PENTACENTRUS*

- |   |  |                                   |   |
|---|--|-----------------------------------|---|
| 1 | Colour uniformly light brown. . .  | <i>brunneus</i> Chop., p. 227     |   |
|   | Colour rufous-brown; elytra translucent, adorned with brown spots. . .   |                                   | 2 |
| 2 | Elytra presenting, besides several large markings, many small brown spots; antennae uniformly yellowish.                             | <i>punctulatus</i> Chop., p. 225  |   |
|   | Elytra without small spots between the larger ones; antennae varied with brown and whitish rings. . .                                |                                   | 3 |
| 3 | Head brown, without ornamentation; face wide. . . . .  |                                   | 4 |
|   | Head adorned above with longitudinal brown bands; face longer.   |                                   | 5 |
| 4 | Processus of the second abdominal tergite of the male a little truncated at apex; genitalia very short. . . . .                      | <i>pulchellus</i> Sauss., p. 221  |   |
|   | Processus of the second abdominal tergite of the male acute; genitalia long. . . . .   | <i>birmanus</i> n. sp., p. 225    |   |
| 5 | Eighth tergite of the male presenting a large, lamellar projection; 9th tergite strongly convex, projecting above the tenth. . . . . | <i>tridentatus</i> n. sp., p. 226 |   |
|   | Eighth and ninth abdominal tergites of the male without special projections.   |                                   | 6 |

- 6 Brown stripes of the head wide;  
genitalia of the male with two erected  
points.

*unifenestratus* Caud.,  
p. 222

Brown stripes of the head narrow;  
genitalia of the male with one erected  
point.

*annulicornis* Chop., p. 224

## 197. *Pentacentrus pulchellus* Saussure

(Figs. 135, 136)

1878. *Pentacentrus pulchellus* Saussure, *Mém. Soc. Genève*, 25, 401,  
pl. 17 (L), figs. 1-5. Chopard, 1925, *Ann. Mag. nat. Hist.*,  
(9) 15, 523, fig. 18. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 64.  
Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 557.

Size small, slender, finely pubescent. Head light brown. Antennae rather thick, pubescent, yellowish at base, composed distally of blackish and yellowish segments. *Pronotum* short, a little narrowing in front, with subangulate posterior margin; disk rufous-brown provided with long brown hairs; lateral lobes with horizontal inferior margin, rounded angles. *Legs* short and rather slender, testaceous or rufous-brown. Anterior tibiae perforated with a large, oval tympanum on the internal face. Posterior femora short, feebly dilated at base, presenting weak brown bands; tibiae shorter than the femora, slender, annulated with brown, pubescent; they are armed with 3 spines on each margin and 3-4 denticles at base, proximal to the first spine; posterior metatarsi long and slender, with superior margins serrulated.

♂: Second abdominal tergite presenting a long process directed forwards, with apex a little truncated; 4th to 8th tergites provided with a rather large, feebly compressed, projecting tubercle; 9th tergite large, transverse, with feebly concave posterior margin; epiproct with feebly notched posterior margin, rounded angles; surface presenting a narrow basal stripe, finely tuberculated, followed by a smooth, yellow band, and two triangular tuberculated spots (fig. 135). Subgenital plate transverse with straight posterior margin. *Elytra* presenting in the dorsal field 3 strong veins, the second being deviated at base, so that it almost touches the third; between the first and the second a very short, incomplete vein forms a kind of basal ridge. *Genitalia* forming two short, wide lobes, rounded at apex with two small teeth; inferior part provided with long hairs (fig. 136).

♀: Often darker than the male. *Elytra* longer than the abdomen, yellowish with a few brown spots; dorsal field presenting 4 strong, longitudinal veins; transverse veinlets



scarce, bordered with brown; lateral field brown, with 3 long veins. Wings long, brownish. *Ovipositor* rather strong, flattened, feebly curved, with lanceolate apical valves.

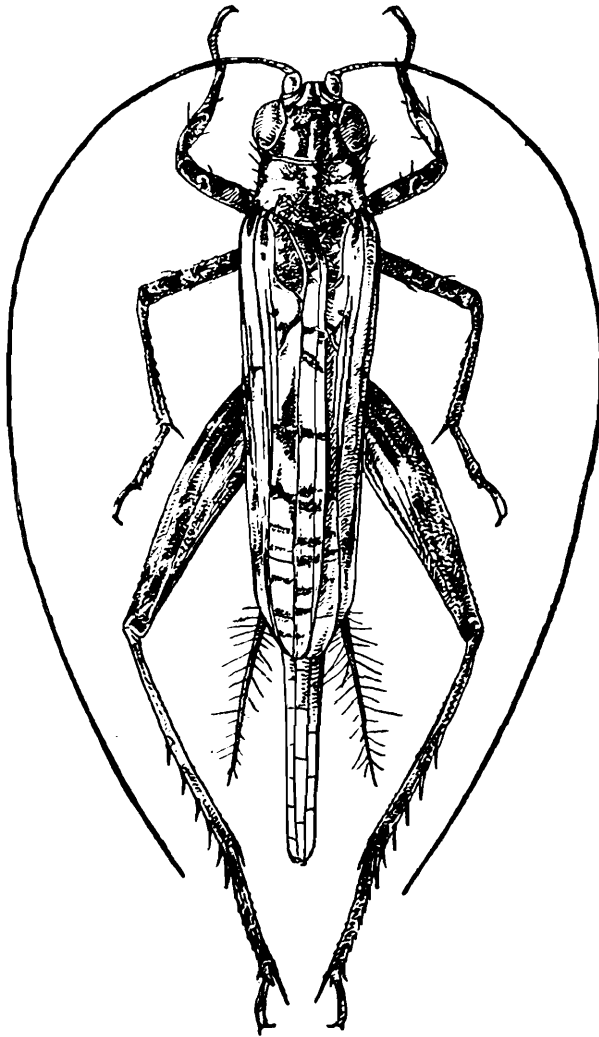


FIG. 134. *Pentacentrus unifenestratus* Caud., ♂ ( $\times 3.2$ ).

*Length* of body 9.5 mm.; length with wings 13 mm.; pronot. 1.2 mm.; post. fem. 5.2 mm.; elytra 7–7.2 mm.; ovipositor 3 mm.

*Range*.—CEYLON (type, Ber. M.): Maskeliya; Mousakande; Gammaduwa (Col. M.).

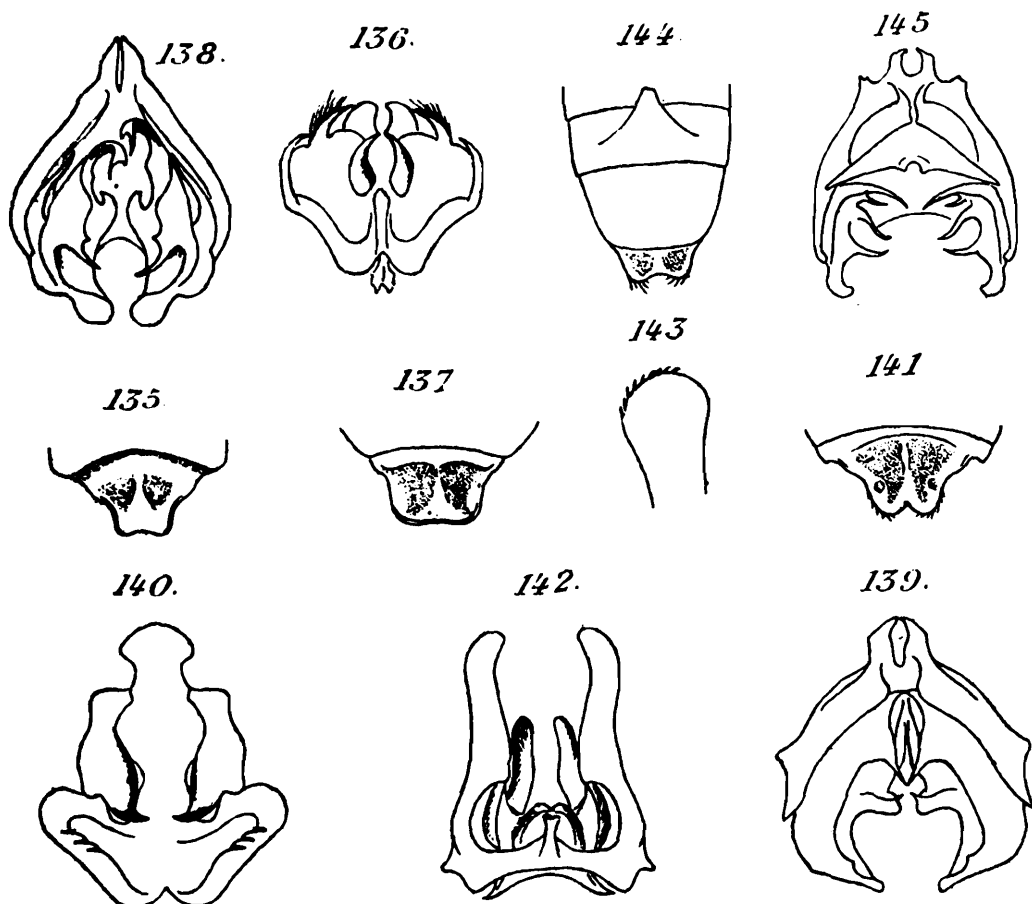
### 198. *Pentacentrus unifenestratus* Caudell

(Figs. 134, 137 and 138)

1927. *Pentacentrus unifenestratus* Caudell, *Proc. U.S. Nat. Mus.*, 71, 93. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 134.

♂: *Head* yellowish with the vertex marked by four longitudinal, wide, blackish stripes. Antennae pale with black

rings. *Pronotum* moderately transverse, with posterior margin obtusely angulate; disk with two longitudinal blackish stripes. Subgenital plate as broad as long, forming a large, apically broadly rounded scoop. *Abdomen* with second tergite presenting a long process feebly widening and rounded anteriorly; the following tergites bearing small tubercles;



FIGS. 135 to 145. 135. *Pentacentrus pulchellus*, supra-anal plate of male. 136. *id.*, genitalia. 137. *P. unifenestratus*, supra-anal plate of male. 138. *id.*, genitalia. 139. *P. annulicornis*, genitalia. 140. *P. punctulatus*; genitalia. 141. *P. birmanus*, supra-anal plate of male. 142. *id.*, genitalia. 143. extremity of lateral part of same, lateral view. 144. *P. tridentatus*, posterior part of abdomen. 145. *id.*, genitalia.

epiproct about as long as broad, apically truncated for about half its width (fig. 137). *Legs* brownish with darker maculations, the blackish markings tending to form obscure brown bands. Anterior tibiae with a very large foramen on the inner surface, occupying almost half the length of the tibia. *Elytra* surpassing the abdomen but falling somewhat short

of the tip of the posterior femora, yellowish-brown, dorsally marked by a couple of triangular blackish spots and some transverse strokes of the same colour. Wings caudate. *Genitalia* with two erected points (fig. 138).

*Length* of body 8 mm.; length with wings 13 mm.; post. fem. 7.5 mm.; elytra 7 mm.

*Range*.—MALAYA: Selangor: Bukit Kutu; Gombak Valley. Pahang: Lubok Tamang. JAVA (type, U.S.N.M.).

### 199. *Pentacentrus annulicornis* Chopard

(Fig. 139)

1929. *Pentacentrus annulicornis* Chopard, *Bull. Raffles Mus.*, No. 2, 104, figs. 2, 3. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 135.

♂: *Head* pubescent, adorned with four brown longitudinal bands. Palpi brown; 5th joint of the maxillary palpi slightly securiform. Antennae annulated with whitish and brown. Ocelli small, subequal. *Pronotum* transverse, rather strongly pubescent, with subangular posterior margin; disk brownish with lighter median line and piriform impresses; lateral lobes dark brown. Second *abdominal* tergite presenting a process directed forwards, slightly truncated at apex; epiproct nearly quadrangular, wide, rounded at apex, presenting two large regions covered with spinules. Anterior and median *legs* rather short, pubescent. Femora dark brown, with a small yellowish ring near the apex; tibiae dark brown, the anterior ones with a large internal tympanum. Posterior femora rather long, dark brown, spotted with yellowish at their external face; tibiae brown, armed with 3 small yellowish spines on each margin; metatarsi very long. *Elytra* with dorsal field yellowish, nearly translucent, the transverse veinlets feebly marked with brown, presenting a brown spot towards the middle and another one near the stridulating vein; in addition, the dorsal field presents 3 parallel veins and a small, incomplete one; lateral field dark brown with 3 veins. Wings yellowish, longer than the elytra. *Genitalia* rather big, rounded with a sharp apical point (fig. 139).

*Length* of body 7.5 mm.; length with wings 11 mm.

Very close to the preceding from which it can be differentiated by the narrower bands of the head and by the genitalia of the male.

*Range*.—MALAYA: Perak: Jor; Batang Padang (Sel. M.). MENTAWAI ISLANDS: Siberut (type, B.M.).

200. *Pentacentrus punctulatus* Chopard

(Fig. 140)

1925. *Pentacentrus punctulatus* Chopard, *Ann. Soc. ent. Fr.*, **94**, 307, fig. 32. Chopard, 1930, *Sarawak Mus. J.*, **4**, 20, pl. 3, figs. 21, 22, 30. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 134.

♂: *Colour* rufous-brown. *Head* a little wider than the pronotum; occiput rounded, adorned with three very diffuse wide brown bands; vertex sloping, wide, rather strongly punctated. Palpi yellow; 5th joint of the maxillary ones triangular, rather wide. Antennae yellowish at base, brown distally with a yellow ring a little beyond the middle. Eyes big, rounded; ocelli very small, nearly in a straight line. *Pronotum* concolorous, feebly narrowing in front, with anterior margin straight, posterior one a little sinuated. *Abdomen* brownish; process of the second tergite a little rounded at apex; following tergites presenting very small tubercles; subgenital plate rather short, rounded. *Legs*: Anterior and median brown, tibiae lighter than the femora, the anterior ones with a large internal tympanum. Posterior femora yellowish with three transverse brown bands on the external face; posterior tibiae yellowish-brown, bearing three small yellow spines on each margin. *Elytra* narrow, translucent, adorned with brown bands on the few transverse veinlets and numerous small brown spots; dorsal field with 3 longitudinal veins and one incomplete at base; the stridulating vein is moderately well marked; lateral field also punctated with brown and darkened in its inferior part. Wings long. *Genitalia* ending in a vertical point, presenting beneath three sharp spines (fig. 140).

*Length* of body 7.5 mm.; length with wings 12 mm.; post. fem. 5.5 mm.; elytra 6.5 mm.

*Range*.—MALAYA: Pahang: Lubok Tamang (Sel. M.). SUMATRA (type).

201. *Pentacentrus birmanus* n. sp.

(Figs. 141, 142 and 143)

*Holotype*: Upper Burma: Nam Tamai Valley (R. Kaulback, 28.VIII.1938), ♂; *allotype*: ♀, same locality (B.M.).

Very similar to *pulchellus* Sauss. *Head* dark brown, without any markings. Antennae almost black, with a short white ring towards the twentieth joint and a very long one a little farther on. *Pronotum* dark brown, pubescent. *Legs*

brown, pubescent; anterior tibiae with a very large internal tympanum. *Elytra* a little longer than the abdomen; dorsal field pale testaceous, with more or less numerous brown spots; transverse veinlets lined with brown; lateral field dark brown. Wings caudate.

♂: *Elytra* presenting usually four rather large brown spots; 4 veins in the dorsal field, feebly irregular, and an incomplete one between the first and the second. *Abdomen* presenting on the second tergite a triangular process, acute at apex; the following tergites bear very small tubercles; epiproct rather deeply notched at apex (fig. 141). *Genitalia* quite different from those of the preceding species, formed of two long, thick and curved pieces (figs. 142, 143).

♀: *Elytra* much darker than those of the male; dorsal field presenting 4 parallel and equidistant veins. Subgenital plate widely notched at apex, with acute angles. *Ovipositor* rather short, feebly curved, with lanceolate, smooth apical valves.

*Length* of body 9 mm.; length with wings 13–13.5 mm.; post. fem. 6.5 mm.; elytra 7.5 mm.; ovipositor 3.5 mm.

Although very close to the preceding species, especially to *pulchellus*, this species presents a quite different type of genitalia.

## 202. *Pentacentrus tridentatus* n. sp.

(Figs. 144, 145)

*Holotype*: Malaya: Selangor, Kuala Lumpur (H. M. Pendlebury, 16.IV.1932), ♂ (Selangor Museum).

General colour rather light. *Head* with four rather neat brown bands; ocelli almost equal. Antennae annulated with yellow and brown. Palpi brown; 5th joint of the maxillary ones triangular, feebly enlarged at apex. *Pronotum* strongly transverse, pubescent with margins provided with long bristles; disk brownish with lighter median line and sides; lateral lobes very dark. *Abdomen* (fig. 144) with 3rd tergite presenting a triangular process directed forwards, feebly enlarged at apex; on each side of the base of this process is found a small tubercle; 4th to 7th tergites with a small cupula in the middle; 8th presenting a large projection in the shape of a plate rounded at apex; 9th tergite with posterior margin strongly convex, projecting above the 10th; epiproct truncated and very feebly emarginate at apex, bearing two areas of small spinules; subgenital plate with rounded posterior margin. *Legs* annulated with brown; anterior tibiae with a very large internal tympanum; posterior femora adorned with

three rather irregular and feebly marked brown bands. *Elytra* of a light colour with two large brown spots near the base and the transverse veinlets marked with the same colour. *Genitalia* very complicated, characterized by three fine teeth directed downwards (fig. 145).

*Length* of body 7 mm.; length with wings 11 mm.; post. fem. 5 mm.

*Range*.—MALAYA: Selangor: Bukit Kutu (B.M.).

### 203. *Pentacentrus brunneus* Chopard

1930. *Pentacentrus brunneus* Chopard, *Surawak Mus. J.*, 4, No. 21, pl. 4, fig. 34. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 134.

♂: *Size* small. *Colour* uniformly light brown. *Head* rather large, rounded; vertex convex, a little rugose and pubescent; face brown. Palpi yellowish; 3rd, 4th and 5th joints of the maxillary ones nearly equal in length, the 5th triangular. Antennae brown with a large, yellowish ring in the middle. Eyes rounded; ocelli round, rather small, but projecting. *Pronotum* very transverse, with anterior margin nearly straight, posterior one much sinuated; disk convex, a little pubescent. *Abdomen* yellowish-brown; epiproct triangular, with two small plates covered with spinules; subgenital plate a little truncated at apex. Cerci brown. *Legs* yellowish, lighter than the body; anterior tibiae perforated on the internal face. Posterior femora feebly enlarged, without any ornament; posterior tibiae armed with 3 small spines on each margin; metatarsi very long. *Elytra* unicolorous, brown, feebly pubescent, a little widened at shoulders; dorsal field presenting 3 longitudinal, parallel veins, the radial one double at base only; a furcate, incomplete vein between the two first ones; transverse veinlets very scarce; lateral field with 3 regular veins. Wings caudate.

*Length* of body 6 mm.; length with wings 9.5 mm.; post. fem. 4.5 mm.

This species differs from the preceding in its uniformly brown colouration.

*Range*.—MALAYA: Selangor: Kuala Lumpur. MALACCA: Rim (Sel. M.). SARAWAK (type, B.M.).

## 7. Family CACOPLISTIDAE

This family includes one single, very aberrant genus which is characterized above all by the shape of the pronotum, the lateral edges of which are compressed in the shape of a crest.

The legs are short; posterior tibiae serrulated, without spines. Elytral mirror well developed in the male; elytra of the female corneous, with projecting veins.

### Genus CACOPLISTES Brunner

1873. *Cacoplistes* Brunner, *Mitth. Schweiz. ent. Ges.*, 4, 169.

1877. *Cachoplistus* Saussure, *Mém. Soc. Genève*, 25, 325.

*Type*.—*Cachoplistus brunnerianus* Saussure.

*Range*.—India, Australia.

Habitus of a beetle. Head very small, globular; vertex sloping; frontal rostrum narrow. Pronotum almost square, excavated above; anterior margin a little projecting; lateral edges lamellate in the shape of a crest. Legs rather short; tibiae quadrangular, the anterior ones bearing a small internal tympanum. Posterior femora very slender; posterior tibiae serrulated; six apical spurs, the external short, almost equal, the internal a little longer, chiefly the median. Elytra extending to the apex of abdomen, presenting in the male a large mirror and numerous oblique veins; *Sc.* bearing several branches; elytra of the female corneous, rugose. Ovipositor long, slender, acute.

### 204. *Cacoplistes rogenhoferi* (Saussure)

(Fig. 146)

1877. *Cachoplistus rogenhoferi* Saussure, *Mém. Soc. Genève*, 25, 329, pl. 15 (XXXII), fig. 2.

1935. *Cachoplistus indicus* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 293.

*Colour* black, punctated. *Head* small, globular. *Antennae* black with a large white ring. ♂: *Elytra* of male large, very wide, dark fulvous with brown veins; mirror a little wider than long, with anterior angle very obtuse, posterior margin rounded, presenting two parallel, equidistant dividing veins; diagonal vein short, trifurcate at base; chords short, the first two slightly convex; the third subangular and united to the speculum by a veinlet; axillar field relatively very large, the axillary vein broken at right angle; 8 to 10 oblique veins, which are nearly parallel, and emerge from the stridulating vein among a somewhat confused reticulation; apical field rather large, very regularly reticulated in polygonal projecting areolae; lateral field presenting between the subcostal and radial veins a wide space, which is regularly divided by straight, parallel veinlets; *Sc.* thickened at base and bearing 8

or 9 branches which are lost in a rough reticulation. Tenth *abdominal* tergite forming a large supra-anal plate with rounded angles; subgenital plate navicular. ♀: *Elytra* of the female blackish-brown, feebly convex with a strong venation which makes the surface rugose; dorsal field with veins oblique, rather distant; lateral field densely reticulated; *Sc.* bearing 5 or 6 branches. Wings short. *Ovipositor* long, straight with apical valves small, very narrow, acute.

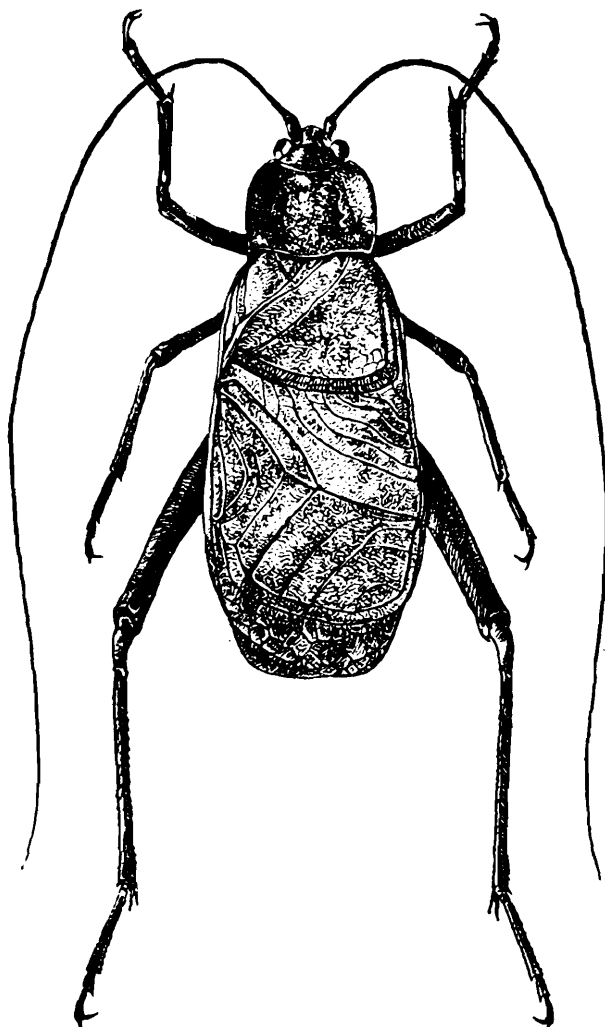


FIG. 146. *Cacoplistes rogenhoferi* (Sauss.), ♂ ( $\times 2.2$ ).

*Length* of body 24–25 mm.; length with elytra 27–27.5 mm.; pronot. 5–5.5 mm.; post. fem. 15–18 mm.; elytra 21.5–22 mm.; ovipositor 12.5 mm.

*Range*.—INDIA: Kashmir (type, V.M.). Assam: Gauhati (type of *indicus*, B.M.). West Bengal: Calcutta (B.M., P.M.); Darjeeling; Pashok (B.M.). Calcutta is the incorrect locality.



Two other male specimens of this species are in the collections of the Paris Museum, labelled Tonkin; this locality seems doubtful and should be confirmed.

## 8. Family PTEROPLISTIDAE

This family is characterized by the shape of the ovipositor which is unique among the *Grylloidea*; it is wide, compressed, curved in the shape of a sword, without differentiated apical valves.

### Genus PTEROPLISTES Brunner

1873. *Pteroplistes* Brunner, *Mitt. Schweiz. ent. Ges.*, 4, 169.

1877. *Pteroplistus* Saussure, *Mém. Soc. Genève*, 25, 331.

*Type*.—*Pteroplistus acinaceus* Saussure.

*Range*.—South India, Malaya, Malay Archipelago.

Body depressed, pubescent. Head orbicular; vertex flattened; frontal rostrum narrow. Pronotum square, with parallel sides, rounded edges; lateral lobes with inferior margin ascending posteriorly. Legs rather short; anterior tibiae perforated with one or two tympana; posterior femora dilated at base, without filiform apical part; posterior tibiae densely serrulated, the last denticles forming short and strong spines. Mirror of the male elytra divided by two veins; oblique veins numerous; subcostal vein bearing numerous, sinuated branches.

### Key to the species of PTEROPLISTES

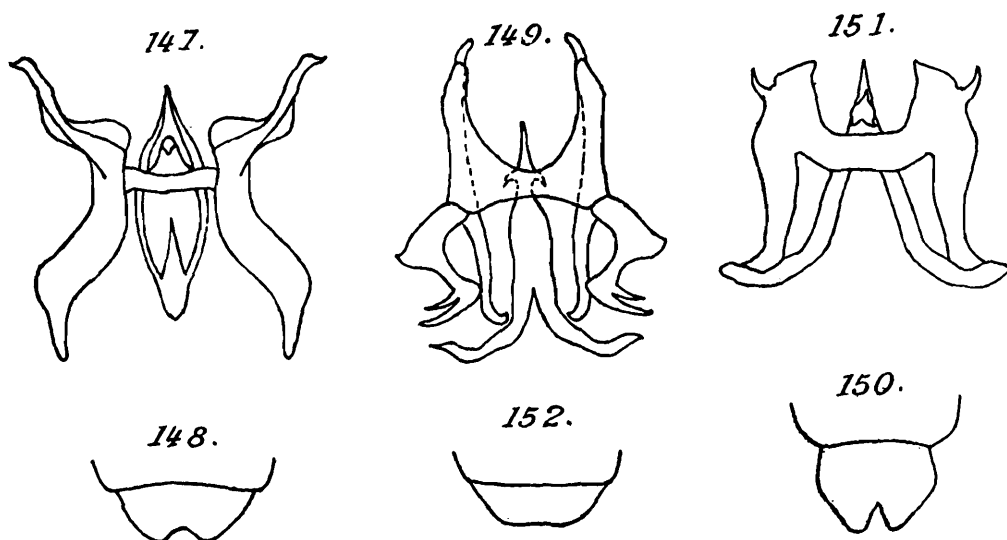
- |   |  |                                   |   |
|---|--|-----------------------------------|---|
| 1 | Elytra extending only to the apex of the fourth abdominal tergite (♀); male unknown.                       | <i>platycleis</i> (Bol.), p. 234  |   |
|   | Elytra of female extending to the apex of abdomen.   |                                   | 2 |
| 2 | Elytral mirror of male as long as wide, rounded in front; subgenital plate of female angularly notched.    |                                   | 3 |
|   | Elytral mirror of male angular in front; subgenital plate of female with almost straight posterior margin. | <i>similis</i> n. sp., p. 233     |   |
| 3 | Size larger (18–21 mm.); frontal rostrum wider than the first antennal joint.                              | <i>acinaceus</i> (Sauss.), p. 231 |   |
|   | Size smaller (11 mm.); frontal rostrum as wide as first antennal joint.                                    | <i>perakensis</i> n. sp., p. 232  |   |

# 205. *Pteroplistes acinaceus* (Saussure)

(Figs. 147, 148)

1877. *Pteroplistus acinaceus* Saussure, *Mém. Soc. Genève*, 25, 333, pl. 15 (XXXIII), figs. 1, 2.

Body feebly depressed. Colour fulvo-testaceous, covered with a fulvous pubescence; head and pronotum rufous above. *Head* large, flattened; frontal rostrum a little wider than the first antennal joint, short. Face short. Palpi rather long; 5th joint of the maxillary palpi a little shorter than the preceding, widened at apex. *Pronotum* depressed, with almost parallel margins, pubescent; lateral lobes much longer than high. *Legs*: Anterior and median femora a little compressed; anterior tibiae presenting a very small, oval, external tympanum and a small round one on the internal face. Posterior



FIGS. 147 to 152. 147. *Pteroplistes acinaceus*, genitalia. 148. *id.*, subgenital plate of female. 149. *P. perakensis*, genitalia. 150. *id.*, subgenital plate of female. 151. *P. similis*, genitalia. 152. *id.*, subgenital plate of female.

femora feebly swollen at base, darkened at apex; tibiae much shorter than the femora, compressed with superior margins denticulated; the two last denticles presenting the shape of short spines; apical spurs strong, curved, the interno-median the longest; posterior metatarsi compressed, armed with 7 denticles on each margin.

♂: *Elytra* a little widening backwards; mirror almost circular, rounded in front, divided by two curved veins, placed before the middle; 5 oblique veins, the first long, sinuated, the fifth very small, the others almost straight; apical field

rather large, presenting 3 veins and a rather regular reticulation; lateral field with *Sc.* presenting 15 branches. Wings scarcely exceeding the elytra. *Genitalia* formed of two curved lateral pieces, united by a narrow bridge (fig. 147).

♀: *Elytra* with veins oblique; reticulation rather regular, forming long areolae; *Sc.* bearing 10 branches. *Ovipositor* wide, curved in the shape of a sword. Subgenital plate small, feebly notched at apex (fig. 148).

*Length* of body ♂ 18 mm., ♀ 21 mm.; pronot. ♂ 3.4 mm., ♀ 4 mm.; post. fem. ♂ 13.5 mm., ♀ 15 mm.; elytra ♂ 15 mm., ♀ 18.5 mm.; ovipositor 13 mm.

*Range*.—MALAYA. MALACCA (type, V.M.).

## 206. *Pteroplistes perakensis* n. sp.

(Figs. 149, 150)

*Holotype*: Malaya: Perak, Larut Hills, 4,500 ft. (H. M. Pendlebury, 23.II.1932), 1 ♀ at light (Selangor Museum).

♀: Smaller than the preceding. *Colouration* rather uniformly brownish. *Head* brown, pubescent; vertex sloping; frontal rostrum as wide as first antennal joint. Face rufous-brown, shining; facial shield slightly punctated. Antennae and palpi rufo-testaceous; 4th joint of the maxillary palpi equalling the 3rd, 5th shorter, triangular, a little obliquely truncated at apex. *Pronotum* feebly transverse, with anterior margin straight, posterior margin slightly convex, sides parallel; lateral lobes rather low, with inferior margin strongly ascending posteriorly, anterior angle strongly rounded. *Abdomen* brownish; subgenital plate rather large, presenting at apex an angular notch reaching a third of the length of the plate (fig. 150). *Legs* brown, pubescent. Anterior tibiae perforated with an oval tympanum on the internal face. Posterior tibiae finely serrulated; posterior metatarsi a little compressed, armed with 4 small denticles on each margin. *Elytra* extending to the apex of abdomen, rounded at apex, uniformly light brown; veins well marked, feebly oblique; *Cu.* furcate a little after the middle; transverse veinlets scarce, forming large, rather regular areolae; *Sc.* bearing 6 branches. Wings a little longer than the elytra. *Ovipositor* short and compressed, as in the other species of the genus.

*Length* of body 11.5 mm.; post. fem. 7 mm.; elytra 7.5 mm.; ovipositor 5.5 mm.

*Allotype* ♂: Pahang: Fraser's Hill, 4,000 ft. (H. M. Pendlebury, 19.VII.1936), ♂ (Selangor Museum).

♂: Same *size* and *colour* as the female. Epiproct triangular, with rounded apex; subgenital plate a little narrowing posteriorly, with posterior margin strongly and angularly notched. *Elytra* extending to the apex of abdomen, smoky and spotted with brown, rounded at apex; mirror as wide as long, with dividing veins parallel, placed behind the middle; 3 long and parallel oblique veins, and 3 shorter ones in the angle of the stridulating vein; chords very distant at base, closer and parallel after; apical field short, presenting a single row of large cells; *Sc.* bearing 16 branches. *Wings* not overreaching the elytra. *Genitalia* presenting two lateral bidentate pieces (fig. 149).

*Length* of body 11 mm.; post. fem. 7 mm.; elytra 7.5 mm.

## 207. *Pteroplites similis* n. sp.

(Figs. 151, 152 and 153)

*Holotype*: Malaya: Perak, Larut Hills, 3,700 ft. (H. M. Pendlebury, 24.II.1932), ♂; *allotype*: Pahang: Cameron's Highlands, 4,800 ft. (H. M. Pendlebury, V.1932), ♀ (Selangor Museum).

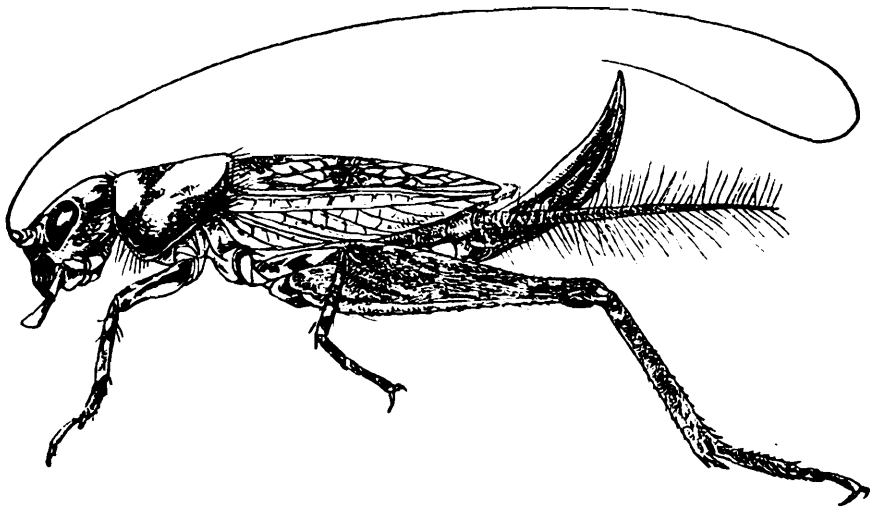


FIG. 153. *Pteroplites similis* n. sp., ♀ (×3.4).

Similar to *acinaceus*, a little smaller; differing by the wider pronotum, the elytra extending only to the apex of abdomen, the shape of the genitalia of the male different (fig. 151); mirror as wide as long, with anterior angle more acute, the two dividing veins united on a certain length; chords a little longer and straighter. Subgenital plate of the female with posterior margin almost straight, scarcely curved in the middle (fig. 152).

*Length* of body ♂ 14.5 mm., ♀ 16 mm.; post. fem. ♂ 11 mm., ♀ 12 mm.; elytra ♂ 9 mm., ♀ 12 mm.; ovipositor 6.5 mm.

## 208. *Pteroplistes platycleis* (Bolivar)

1900. *Pteroplistus platycleis* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 802, pl. 12, figs. 26, 26a.

*Colour* fusco-testaceous, pubescent. *Head* varied above with brown; frontal rostrum a little wider than the first antennal joint, very short, presenting two deep impresses at apex; face very short and wide. *Pronotum* almost square, spotted with brown above; lateral lobes very low, dark brown. *Abdomen*: Subgenital plate presenting a rounded notch at apex, with rounded lobes. *Legs*: Anterior tibiae perforated with a rather large oval tympanum on the internal face; apical spurs of the posterior tibiae short, the medio-internal longer than the superior. *Elytra* extending to the apex of 4th abdominal tergite; veins weak, forming a very irregular reticulation, the principal veins scarcely distinct; *Sc.* bearing 4 branches. Wings as long as the elytra.

*Length* of body 15 mm.; post. fem. 8.5 mm.; elytra 5.5 mm.; ovipositor 6 mm.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodaikanal (Pantel's collection, type, P.M.).

## 9. Family PHALANGOPSIDAE

The Gryllids of this family are, as a rule, of rather large size, with head small, legs very long, the posterior tibiae armed with spines and with denticles between them and at base. In the winged species, the males present a mirror divided by two veins at least. Tarsi very long, with very small second joint.

The *Phalangopsidae* are usually hygrophilous insects, which are found chiefly in the forests, among dead leaves and in decaying wood. A certain number of species live in caves and almost all the cavernicolous crickets are *Phalangopsidae*.

### *Key to the genera of PHALANGOPSIDAE*

- |   |  |   |
|---|--|---|
| 1 | Legs rather short; posterior femora without apical filiform part.              | 2 |
|   | Legs long or very long; posterior femora with a distinct filiform apical part. | 3 |

- 2 Lateral lobes of the pronotum triangular. *Larandopsis* Chop., p. 240
- Lateral lobes of the pronotum elongate with inferior margin moderately ascending posteriorly. *Luzaropsis* Chop., p. 235
- 3 Both sexes apterous. 4  
Male alone or both sexes winged. 6
- 4 First abdominal tergite very large and produced above the other tergites in the shape of a triangular shield. *Aspidogryllus* Chop., p. 264
- First abdominal tergite of normal shape. 5
- 5 Supero-internal apical spur of the posterior tibiae shorter than the median. *Arachnomimus* Sauss., p. 257
- Supero-internal apical spur of the posterior tibiae longer than the median. *Opilionacris* Sjöst., p. 263
- 6 Frontal rostrum narrow. 7  
Frontal rostrum wide. 9
- 7 Elytra of male with a perfect mirror. 8  
Elytra of male without distinct mirror. *Paragryllodes* Karny, p. 245
- 8 Elytra extending to the apex of abdomen in both sexes. *Homoeogryllus* Guér., p. 241
- Elytra of male well developed, but shorter than the abdomen, those of the female reduced to small lobes concealed beneath the pronotum. *Parendacustes* Chop., p. 248
- 9 Mirror of male triangular, partly reticulated; 3 oblique veins. *Kempiola* Uvar., p. 252  
Elytra of male without neat mirror. *Phalangopsina* Chop., p. 255

## Genus LUZAROPSIS Chopard

1925. *Luzaropsis* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 521.

*Type*.—*Luzara* (?) *ferruginea* Walker.

*Range*.—Ceylon, India, Sarawak.

Both sexes winged. Head rather small, globular; frontal rostrum as wide as the first antennal joint. Pronotum wide. Anterior tibiae with a small internal tympanum; posterior femora without filiform apical part; posterior tibiae serrulated and armed with 4 spines on each margin. Elytra extending to the middle of abdomen; mirror confused in the male. Ovipositor rather long, slender, with small apical valves.

*Key to the species of LUZAROPSIS*

Elytral venation very similar in both sexes; lateral field of elytra very small; a yellow lateral band very distinct on the pronotum and elytra.

*henryi* Chop., p. 239

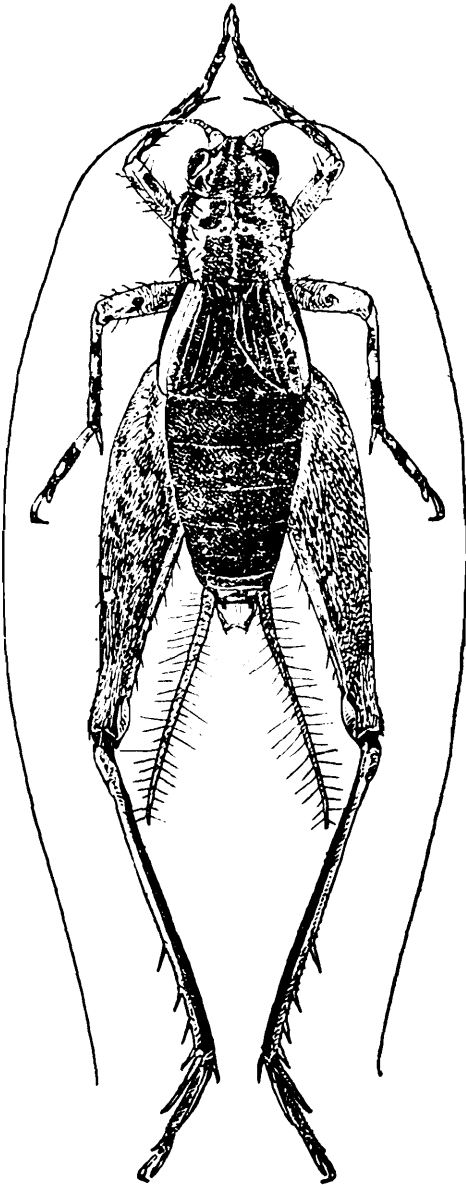


FIG. 154. *Luzaropsis henryi* Chop., ♂ (× 2.95).

- Elytral venation of the male rather different from the female; lateral field of elytra larger; pronotum without yellow band.. . . . .
- 2 Elytral venation of the male very confused; the chords alone well distinct from the reticulation; subgenital plate longer than wide; in the female veins quite parallel and regular.

2

*confusa* n. sp., p. 239

Elytral venation of the male a little more distinct, with rather neat chords, stridulating vein and oblique veins; subgenital plate short, rounded; venation of the female not so regular.

*ferruginea* (Walk.),  
p. 237

## 209. *Luzaropsis ferruginea* (Walker)

(Fig. 155)

1869. *Luzara* (?) *ferruginea* Walker, *Cat. Derm. Salt. Br. Mus.*, 1, 103.

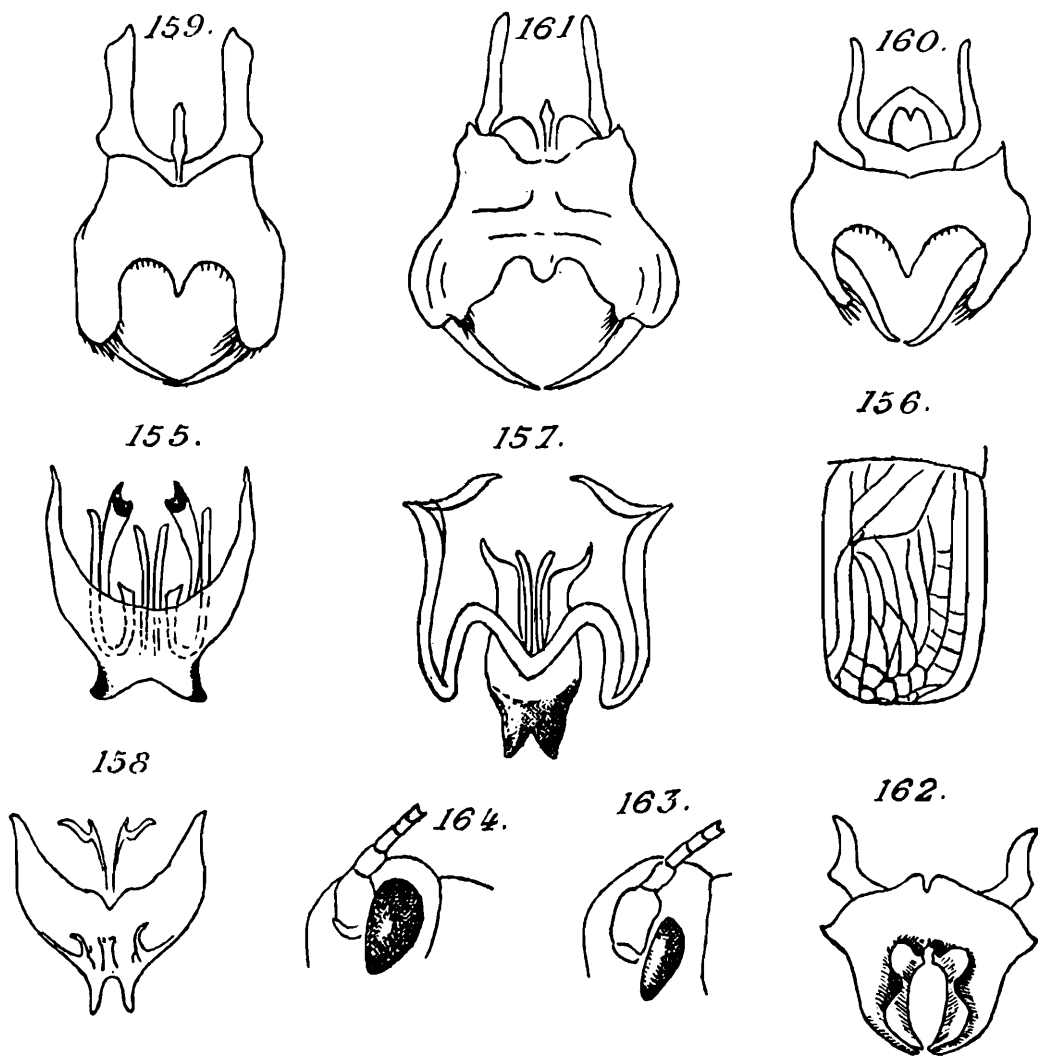
1925. *Luzaropsis ferruginea* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 521, figs. 15-17. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 559.

*Colour* ferruginous-brown, varied with dark brown. *Head* rather small, adorned above with six brown lines, more or less uniting in front; frontal rostrum as wide as the first antennal joint, yellow at apex. Antennae yellow with small brown rings. Palpi yellowish, a little darkened at apex; 5th joint of maxillary palpi very much dilated at apex, securiform. Eyes rather big, rounded; lateral ocelli rather large, round; anterior one oval, in the middle of the superior face of frontal rostrum. *Pronotum* wide, with anterior and posterior margins straight; disk rufous adorned with small brown spots; lateral lobes black, with inferior margin feebly ascending posteriorly. *Legs* rufo-testaceous, a little mottled with brown. Anterior and median tibiae presenting three brown rings, the anterior ones provided with a small round tympanum on internal face. Posterior femora rufous-brown; posterior tibiae armed with 4 spines on each superior margin, serrulated at base and between the spines; supero-internal and median apical spurs long, infero-internal equalling the last spine; medio-external about twice as long as the other two; posterior metatarsi long, armed above with 6 external, 3 internal denticles.

♂: *Elytra* extending to the middle of fourth abdominal tergite, rounded at apex with parallel margins, brown with humeral edge and veins yellowish; diagonal, stridulating vein and chords rather neatly marked, the rest somewhat confused, formed of about ten longitudinal or a little oblique veins, ending in a loose apical reticulation; lateral field high and short, presenting a dark brown band along the subcostal vein, and showing 4 plain, parallel, feebly curved veins. Subgenital plate rather large, short, widely rounded at apex. *Genitalia* short and wide, feebly notched at apex (fig. 155).



♀: *Elytra* extending to the apex of third abdominal tergite, very feebly rounded at apex, with straight margins; lateral field as in the male; dorsal field with 7 longitudinal, somewhat irregular veins, the 4th and 5th united a little before the apex; transverse veinlets moderately numerous, irregular. Subgenital plate small, notched at apex with rounded angles. *Ovipositor* rather long, slender with apical valves small, the superior ones strongly notched at their superior margin.



FIGS. 155 to 164. 155. *Luzaropsis ferruginea*, genitalia. 156. *L. confusa*, right elytron of male. 157. *id.*, genitalia. 158. *L. henryi*, genitalia. 159. *Homoeogryllus cincticornis*, genitalia. 160. *H. longicornis*, *id.*, 161. *H. japonicus*, *id.*, 162. *Parendacustes pendleburyi*, genitalia. 163. eye of *Kempiola longipes*. 164. *id.*, of *K. maindroni*.

Length of body ♂ 14.5 mm., ♀ 18.5 mm.; pronot. ♂ 3.5 mm., ♀ 4 mm.; post. fem. ♂ 13 mm., ♀ 15.5 mm.; elytra ♂ 4.5 mm., ♀ 3.5–4.5 mm.; ovipositor 13.5 mm.

*Range*.—CEYLON: Kandy; Mousakande; Gammaduwa; Labugama; Wellawaya (Col. M.); numerous localities (Sandra-sagara).

## 210. *Luzaropsis confusa* n. sp.

(Figs. 156, 157)

*Holotype*: Ceylon: Woodside, Urugala, ♂; *allotype*: same locality, ♀ (Paris Museum).

Very close to the preceding, with which it has been confused; inferior margin of the lateral lobes of the pronotum almost straight. ♂: Veins of the male *elytra* (fig. 156) almost completely lost in the general reticulation; only the chords are well marked, straight and united at base. Subgenital plate a little elongated and narrowing towards the apex. *Genitalia* longer than in the preceding, narrow and rather deeply notched at apex (fig. 157). ♀: In the female, dorsal field of *elytra* presenting 7 quite regular, parallel veins. Subgenital plate is small, notched at apex with almost angulated lobes.

*Length* of body ♂ 15 mm., ♀ 16 mm.; pronot. ♂ 2.8 mm., ♀ 3.5 mm.; post. f.m. ♂ 11.5 mm., ♀ 14.5 mm.; *elytra* ♂ 3.6 mm., ♀ 4.5 mm.; ovipositor 14.5 mm.

This species is probably as widely distributed in Ceylon as *ferruginea* with which it has been confused.

## 211. *Luzaropsis henryi* Chopard

(Figs. 154, 158)

1928. *Luzaropsis henryi* Chopard, *Spol. Zeyl.*, **14**, 203, pl. 15, figs. 13, 14. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 68. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 559.

♂: *Size* rather large and stout. *Colour* testaceous varied with brown, pubescent. *Head* small; adorned above with a large brown spot produced into four brown bands on the occiput; frontal rostrum a little narrower than the first antennal joint, presenting two rows of strong bristles. Face and mouth-parts yellow; maxillary palpi with a few brown spots, their 5th joint very wide, securiform. Antennae brown with a few distant yellow rings. *Pronotum* slightly transverse, a little narrowed in front; disk rather strongly convex, adorned with a wide median brown band, interrupted by the usual impressions which are yellowish; the sides of the disk are also yellowish with a few small brown spots; lateral lobes brown

with yellowish inferior part. *Abdomen* brown above, yellowish beneath; 10th tergite and epiproct yellow; subgenital plate rather long, a little notched at apex. *Cerci* yellow. *Legs* testaceous with a few blackish spots, very pubescent. Anterior and median tibiae with a narrow blackish ring near the base and another very wide at apex; anterior tibiae perforated on both sides with a small, oval tympanum. Posterior femora thick, testaceous, very pubescent; tibiae serrulated and armed with 4 spines on each margin. *Elytra* extending to the posterior margin of second abdominal tergite, brown with a yellow humeral band; internal margin feebly oblique, apex widely rounded; 5 veins in the dorsal field, strongly marked, parallel; transverse veinlets weak, somewhat irregular, yellowish; lateral field very low, with inferior margin very oblique, presenting 3 plain veins only. *Genitalia* small, triangular, notched at apex (fig. 158).

♀: Similar to the male but somewhat bigger. *Elytra* as in the male but slightly separated on the median line; veins of the dorsal field very regular, close, 7 in number. *Ovipositor* straight with apical valves very small, acute; subgenital plate small, angularly notched at apex.

*Length* of body ♂ 15 mm., ♀ 18.5 mm.; pronot. ♂ 3.2 mm., ♀ 3.5 mm.; post. fem. ♂ 13 mm., ♀ 14 mm.; elytra ♂ 4 mm., ♀ 4.1 mm.; ovipositor 14.5 mm.

This species has very much the general shape and habitus of the preceding; but it is quite different, the two sexes showing very similar elytra with a very small lateral field.

*Range*.—CEYLON: Horowapotana (type, B.M.); Polonnaruwa; Mihintale; Trincomalee; Pulmoddai; Katalai; Marichchukkadi (Sandrasagara).

### Genus LARANDOPSIS Chopard

1924. *Larandopsis* Chopard, *Rec. Ind. Mus.*, 26, 86.

*Type*.—*Larandopsis choprai* Chopard.

*Range*.—Assam.

This genus is close to the preceding but it is insufficiently known from immature individuals of both sexes in the only species in the genus. Frontal rostrum as wide as first antennal joint. Pronotum wide, lateral lobes nearly triangular, with inferior margin strongly ascending posteriorly. Legs rather long; anterior tibiae perforated at internal face; posterior femora rather short; posterior tibiae armed with 4 spines on each margin; supero-internal apical spur the longest; medio-external one longer than the other two. Both sexes winged.

212. *Larandopsis choprai* Chopard

1924. *Larandopsis choprai* Chopard, *Rec. Ind. Mus.*, 26, 86, pl. 4, figs. 18-21.

*Colour* rufo-testaceous, varied with brown. *Head* a little narrower than the pronotum, adorned above with four narrow brown lines; frontal rostrum as wide as first antennal joint. *Face* yellowish with a median brownish band on the top of facial shield, divided in its inferior part, and joining on each side with a band of the same colour below each eye. *Maxillary palpi* yellow, somewhat brownish outside, with 5th joint very long. *Pronotum* wide, somewhat convex above; anterior margin slightly notched, fringed with bristles, posterior margin straight; disk brownish with an irregular whitish band and a large, more or less rounded, yellowish spot on each side; lateral lobes triangular, fuscous with a small yellow spot. *Abdomen* covered above with a golden pubescence, yellowish in the middle, brownish laterally; epiproct elongate, subtriangular. *Cerci* very long, as long as the body. *Legs* rather long, yellowish with brown bands; anterior tibiae showing the trace of a foramen on the inner surface; anterior and median tibiae with 3 brown rings, armed at apex with two small inferior spurs. Posterior femora rather short and stout, gently narrowed apically, showing a few brown spots on the external face; posterior tibiae with two basal brown spots, armed with 4 pairs of spines, moderately long, the internal longer than the external ones; a few very small denticles in the basal part of the tibiae and between the spines on the external margin only; external apical spurs very short, the median about twice as long as the other two; median and superior internal spurs very long, hairy, the superior as long as the metatarsus. *Elytra* and wings present in both sexes; to specify their characters is impossible, the species being known from immature specimens only.

*Length* of body 10 mm.; post. fem. 9.5 mm.; post. tib. 9 mm.; cerci 10 mm.

*Range*.—INDIA: Assam: Garo Hills; Siju Cave (type, I.M.).

## Genus HOMEOGRYLLUS Guérin

1847. *Homoeogryllus* Guérin in Lefebvre, *Voy. Abyssinie*, 6, 336.

1870. *Meloimorpha* Walker, *Cat. Derm. Salt. Br. M.*, 3, 468.

*Type*.—*Homoeogryllus xanthographus* Guérin.

*Range*.—Tropical Africa, South Asia, Japan.

Head small, convex above; frontal rostrum narrow, furrowed. Eyes small, protruding; palpi very long. Pronotum narrowing in front, feebly saddle-backed. Legs long and slender; anterior tibiae perforated with two small, oval tympana; posterior femora very slender; posterior tibiae serrulated and armed with 2 or 3 weak spines on each margin; externo-apical spurs short, the superior equalling the median or a little shorter; median internal spur longer than the superior one. Both sexes winged; elytra very wide in the male; mirror large, rounded posteriorly, angulate anteriorly, presenting two dividing veins; 5-7 oblique veins; *Sc.* bearing numerous branches.

*Key to the species of HOMEOGRYLLUS*

- |   |   |                                     |
|---|---|-------------------------------------|
| 1 | Antennae whitish with two first joints blackish.                        | <i>japonicus</i> (Haan), p. 244     |
|   | Antennae more or less distinctly annulated with brownish and yellowish. | 2                                   |
| 2 | Size rather large (length with elytra 15-18 mm.).                       | <i>cincticornis</i> (Walk.), p. 242 |
|   | Size smaller (length with elytra 9.5-12 mm.).                           | <i>longicornis</i> (Walk.), p. 244  |

**213. *Homoeogryllus cincticornis* (Walker)**

(Fig. 159)

1870. *Meloinorpha cincticornis* Walker, *Cat. Derm. Salt. Br. M.*, 3, 469.  
 1935. *Homoeogryllus cincticornis* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 293.

*Size* rather large. *Colour* very dark brown. *Head* a little flattened above, without any ornamentation; frontal rostrum very narrow. Face rufous-yellow, smooth. Antennae pale brown with the two first joints darker, presenting a wide white ring a little before the basal fourth, and a certain number of small yellowish rings in the distal part. Maxillary palpi very long; 5th joint a little longer than 4th, feebly widening at top. *Legs*: Anterior and median legs a little lighter in colour than the body. Posterior femora dark brown; posterior tibiae armed with 3 spines on each margin, the last external very short; external apical spurs short; internal ones a little longer, the median spur the longer on each side; posterior metatarsi very long.

♂: *Abdomen*: Tenth tergite with projecting angles. *Elytra* longer than the body, dark brown with lighter veins; mirror,

almost one and a half times as wide as long, rounded posteriorly, divided by two veins strongly converging towards the external angle; 7 oblique veins, the 3 first parallel, curved at base, nearly straight further on, the other ones very sinuous; lateral field is large and is applied to the body, partly covering it; Sc. bearing 20 branches; apical field presenting an

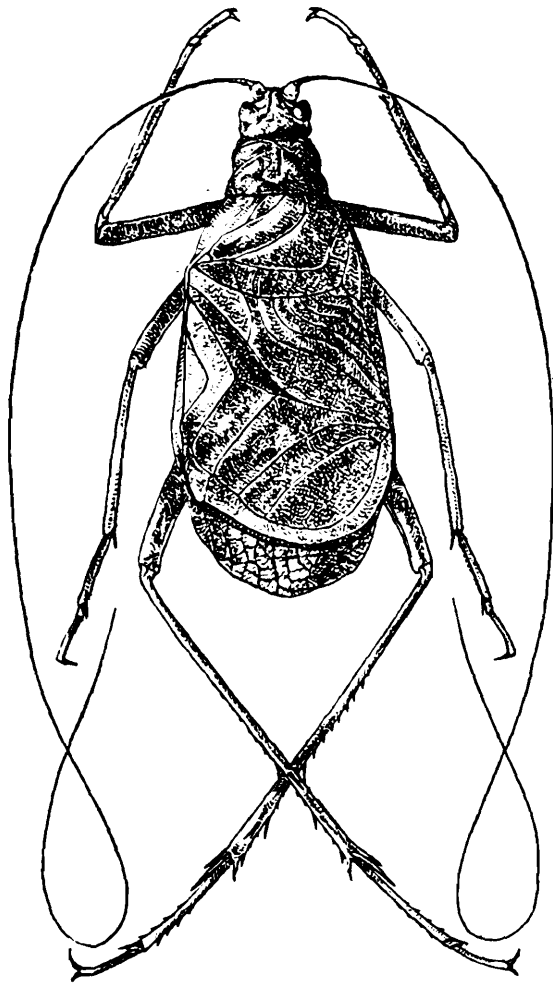


FIG. 165. *Homoeogryllus longicornis* (Walk.) ♂ ( $\times 2.17$ ).

irregular reticulation. Wings shorter than the elytra. *Genitalia* with superior part trilobate, the inferior in the shape of a long hook (fig. 159).

♀: *Elytra* blackish with veins oblique, testaceous, *Cu.* divided near the middle; transverse veinlets rather numerous, very irregular, more or less anastomosed. Wings as long as the elytra or a little longer in the macropterous specimens. *Ovipositor* straight, slender, with apical valves very narrow, smooth.

*Length* of body 15–18 mm.; length with elytra 18–21.5 mm.; post. fem. 14.5–15 mm.; elytra 14–18 mm.; ovipositor 15 mm.

*Range*.—INDIA: 'Hindusthan' (type, B.M.). Bombay: Salsette Island, Andheri (B.M.). Madras: Coimbatore (B.M.).

## 214. *Homoeogryllus longicornis* (Walker)

(Figs. 160, 165)

1869. *Phalangopsis longicornis* Walker, *Cat. Derm. Salt. Br. M.*, 1, 106.

Very similar to the preceding but smaller and not so dark; general colouration testaceous. Antennae feebly annulated with testaceous and blackish. *Pronotum* blackish with an interrupted yellow stripe on each side. Hind tibiae with 3 rather long, slender spines on each margin. *Elytra* nearly as in *cincticornis*; apical field with 7 rather regular veins. Wings caudate or not. *Genitalia* of the male of the same type as the preceding (fig. 160).

*Length* of body 9.5–12 mm.; length with elytra 15 mm.; post. fem. 10.5 mm.; elytra 12.5 mm.

*Range*.—BURMA: Rangoon; Moulmein (P.M.). MALAYA: Singapore (type, B.M.).

## 215. *Homoeogryllus japonicus* (Haan)

(Fig. 161)

1842. *Gryllus* (*Phalangopsis*) *japonicus* Haan, *Temminck, Verhandl., Orth.*, 236.

1869. *Phalangopsis albicornis* Walker, *Cat. Derm. Salt Br. M.*, 1, 106.

1878. *Homoeogryllus japonicus* Saussure, *Mém. Soc. Genève*, 25, 428.

Same general shape as the preceding. *Colour* dark brown or even black. *Head* small; occiput with four more or less visible yellowish spots; vertex with a testaceous stripe. Antennae with two first joints blackish, the rest wholly white. *Pronotum* blackish with 5 more or less visible, testaceous, callous spots along the median furrow; lateral lobes black. *Legs*: Posterior tibiae armed with 3 spines on each margin. *Elytra*: Mirror of the male a little wider than long, divided by two veins converging towards the external angle; 5 principal oblique veins and 2 smaller ones in the angle of the stridulating vein; *Sc.* bearing 17 branches. *Genitalia* similar to *cincticornis* with median lobe more rounded (fig. 161).

*Length* of body 10·5–15 mm.; length with elytra 15–18 mm.; post. fem. 12–12·8 mm.; elytra 14·5 mm.

*Range*.—INDIA: Northern India (type of *albicornis*, B.M.). JAPAN.

## Genus PARAGRYLLODES Karny

1909. *Paragrylloides* Karny, *Zool. Jahrb., Syst.*, **27**, 478.

1909. *Montigryllus* Sjöstedt, *Kilimandjaro-Meru Exp.*, **3**, 112, pl. 5, figs. 10, 11.

1928. *Pseudendacustes* Chopard, *Rec. Ind. Mus.*, **30**, 25.

*Type*.—*Paragrylloides borgerti* Karny.

*Range*.—East Africa, Belgian Congo, Madagascar, India, Ceylon.

Frontal rostrum narrow, furrowed; anterior ocellus at apex of the rostrum. Palpi rather short; 5th joint of maxillary palpi a little longer than 4th; rather strongly widening at apex. Pronotum wider than long; lateral lobes triangular. Legs moderately elongated; anterior tibiae perforated with a small tympanum on the internal face; posterior femora with a short apical filiform part; posterior tibiae denticulated, armed with 3 or 4 spines on each margin; medio-external apical spur longer than the other two; infero-internal spur very short, median and superior long, equal in length. Elytra somewhat shortened in both sexes, presenting no distinct mirror in the male.

### *Key to the species of PARAGRYLLODES*

- 1 Pronotum adorned with two rufous stripes on each side of the disk; elytra of male with diagonal and oblique veins rather neat. . . . . *gravelyi* (Chop.), p. 245
- Pronotum with a rather indistinct yellowish band on each side; elytral venation of male more confused. . . . . *ceylonicus* (Chop.), p. 246

## 216. *Paragrylloides gravelyi* (Chopard)

1928. *Pseudendacustes gravelyi* Chopard, *Rec. Ind. Mus.*, **30**, 25, figs. 40, 41.

*Size* rather small. *Colour* rufous, shining. *Head* wider than the pronotum in front, rufous; vertex much excavated; frontal rostrum very narrow, furrowed; face elongated, rufous. Maxillary palpi rather slender, a little darkened, with 5th



joint a little longer than 4th. Eyes large, protruding, rounded; ocelli small, the anterior one at apex of the rostrum. Antennae rufous at base, brown distally. *Pronotum* dark brown, adorned with two rufous stripes on each side; anterior margin slightly convex, posterior a little concave; disk shining, somewhat embossed; lateral lobes triangular, with inferior margin strongly ascending posteriorly; anterior angle a little rufous. *Legs* a little lighter than the body, rather long, provided with short and strong bristles. Anterior tibiae slender, presenting on their internal face a depression and a small tympanum; tarsi very long and slender, the metatarsus equalling the other two joints together. Posterior femora rather long with filiform apical part very much reduced; posterior tibiae armed with 4 external and 3 internal rather short spines, denticulated along their whole length from apex to base; median external apical spur twice as long as the inferior, which is a little longer than the superior; infero-internal spur short, median and superior ones long and equal in length; metatarsi darkened except at base, armed above with a row of 5-6 denticles.

♂: *Abdomen* a little mottled with brown; subgenital plate elongate, slightly truncated at apex. *Elytra* extending but little beyond the middle of abdomen, truncated at apex, presenting a blackish spot in the anal field, and a second, larger one, occupying the greater part of the disk; dorsal field presenting no well-defined mirror; 6 rather neat oblique veins and a seventh less visible; diagonal vein and two chords rather badly defined; lateral field blackish, with 3 parallel veins.

♀: *Elytra* brown, shining, extending beyond the middle of abdomen, with prominent veins; dorsal field with 5 longitudinal, somewhat diverging veins; transverse veinlets fairly numerous, feebly visible, irregular; lateral field with 3 longitudinal, plain veins.

*Length* of body 9-10 mm.; pronot. 2-2.3 mm.; post. fem. 9 mm.; elytra ♂ 4 mm., ♀ 4.5 mm.

*Range*.—INDIA: Travancore (Kerala): Cochin (type; I.M.).

## 217. *Paragrylloides ceylonicus* (Chopard)

1936. *Seychellesia ceylonica* Chopard, *Ceyl. J. Sc.*, (B) 20, 69, figs. 14, 15. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 559.

♂: *Size* medium. *Colour* rufous brown, shining. *Head* as wide as pronotum; occiput convex, short, rufous; frontal

rostrum a little narrower than the first antennal joint, compressed, furrowed; anterior ocellus a little before the apex of the rostrum at the bottom of a small depression; face rufous with a yellow median band. Eyes strongly protruding forwards so that the vertex is hollowed to lodge the first antennal joint. Antennae very slender, brown. Palpi rather short, slender; 5th joint of maxillary palpi a little longer than 4th, feebly enlarged at apex. *Pronotum* transverse with nearly straight anterior margin, posterior one very slightly concave, both ciliated; disk irregular, rufous-brown with a yellowish band, rather indistinct, on each side; lateral lobes concolorous, with inferior margin strongly ascending posteriorly, anterior angle subacute. *Abdomen* rufo-testaceous, varied with brown. *Legs* rather short, rufous, slightly pubescent and presenting a few short bristles. Anterior tibiae perforated with a small round tympanum on internal face; tarsi long, metatarsus yellow at base, a little longer than the other two joints united. Posterior femora strongly swollen at base with a very reduced filiform apical part, presenting a large brown spot on the internal face; posterior tibiae annulated with brown, serrulate and armed with 3 small internal, 4 external spines towards the apex; external apical spurs very short, the median one a little longer than the other two; infero-internal spur short, median and superior ones rather long, equal in length; metatarsi feebly compressed, armed with 3 or 4 small denticles at external margin.

♂: Subgenital plate very long, subacute at apex. Cerci very long. *Elytra* covering half of the abdomen, much rounded at apex, brown with rufous veins; dorsal field showing distinctly only the stridulating vein and the chords; the mirror and the oblique veins confused; lateral field presenting 3 plain veins. No wings. *Genitalia* very long, projecting in the shape of a double, somewhat curved point.

♀: *Colouration* more varied with brown spots. Subgenital plate small, a little notched at apex. *Elytra* almost as long as in the male, with oblique internal margin; dorsal field spotted with brown, with 5 plain, rather projecting veins; transverse veinlets scarce and feebly visible; lateral field as in the male. *Ovipositor* long and slender, straight, with apical valves ovato-lanceolate, rather wide at base and suddenly narrowing towards the apex.

*Length* of body ♂ 11.5 mm., ♀ 13 mm.; post. fem. ♂ 10.5 mm., ♀ 11 mm.; elytra ♂ 4.5 mm., ♀ 5 mm.; ovipositor 14 mm.

*Range*.—CEYLON: Labugama (type, Col. M.); Timbolketiya; Deniyaya (Col. M.).

## Genus PARENDACUSTES Chopard

1924. *Parendacustes* Chopard, *Ann. Soc. ent. Fr.*, 93, 190.

*Type*.—*Parendacustes cavicola* Chopard.

*Range*.—India, Malaya, Malay Archipelago.

Frontal rostrum narrow; maxillary palpi very long. Pronotum transverse, widening in front. Legs long; anterior tibiae presenting a small internal tympanum; posterior femora with a rather long, filiform apical part; posterior tibiae armed with 4 spines on each margin; median apical spur the longest on each side. Elytra of male presenting a large mirror and several oblique veins; apical field very short. Elytra of female reduced to very small lobes or absent.

*Key to the species of PARENDACUSTES*

- |   |  |                                   |
|---|--|-----------------------------------|
| 1 | Rather large species (17 mm.); mirror of male divided by two veins. . . . .          | <i>picticeps</i> (Walk.), p. 248  |
|   | Smaller (9–10 mm.); mirror of male divided by one vein. . . . .                      | 2                                 |
| 2 | Frontal rostrum very narrow; 5th joint of maxillary palpi very long. . . . .         | <i>pendleburyi</i> n. sp., p. 250 |
|   | Frontal rostrum relatively broad; 5th joint of maxillary palpi rather short. . . . . | <i>latifrons</i> n. sp., p. 251   |

218. *Parendacustes picticeps* (Walker)

(Fig. 166)

1869. *Phalangopsis picticeps* Walker, *Cat. Derm. Salt. Br. M.*, 1, 107.

1878. *Arachnopsis* (?) *picticeps*, Saussure, *Mém. Soc. Genève*, 25, 443.

*Size* rather large. *Colour* brown varied with yellowish, covered with a blackish pubescence. *Head* short; occiput dark brown, vertex testaceous; frontal rostrum as wide as first antennal joint, convex above. Face yellow, adorned with four longitudinal brown bands, one beneath each eye and one on each side, uniting the external angle of the clypeus with the antennal socket and produced along this up to the top of the forehead. Eyes rounded, strongly protruding; lateral ocelli rather large, at base of the rostrum, anterior one near the extremity. Antennae brown with first joint yellowish mottled with brown. Palpi long, brown with a yellow line on the external side of each joint. *Pronotum* very strongly transverse, widening in front, feebly pubescent; disk feebly convex, rufo-testaceous, darkened anteriorly and posteriorly with a narrow yellow line along the anterior and

posterior margins; lateral lobes almost triangular, with inferior margin strongly ascending posteriorly. *Abdomen* brown above, yellowish beneath; epiproct quadrangular; subgenital plate narrowing towards the apex. *Legs* very long. Anterior and median femora feebly annulated with brown; tibiae with three wide, brown rings, armed with two

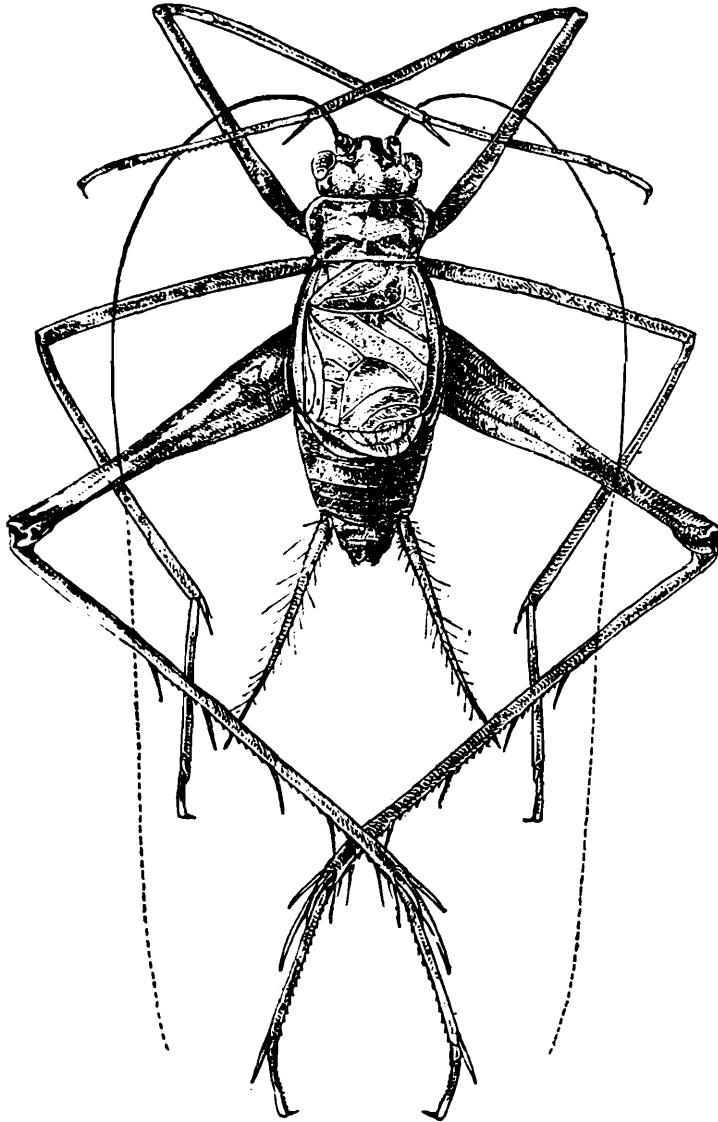


FIG. 166. *Parendacustes picticeps* (Walk.), ♂ ( $\times 2.4$ ).

long apical spurs; anterior tibiae perforated with a small internal tympanum, placed quite near the base; metatarsi very long, brown with yellow base. Posterior femora rather strongly dilated at base, but with an apical filiform part occupying almost a third of the total length; rufo-testaceous with the extremity a little darkened; posterior tibiae very long,

armed with 4 spines on each margin, strongly serrulated at base and between the spines; median apical spur the longest on both sides; metatarsi very long, rounded above, very pubescent, armed with 3-4 internal, 6-7 external denticles. *Elytra* extending to the middle of abdomen, dark brown with lighter veins and a narrow yellowish band extending on the inferior margin of the lateral field and along the apical field to the internal angle; mirror large, almost as long as broad, with anterior angle quite rounded, divided by two long veins and a very small one almost at apex; diagonal vein short, very oblique; first chord united to the mirror by two veinlets, the two internal chords very close to one another; 2 long, almost straight, parallel oblique veins and 2 short ones, incurved, in the angle of the stridulating vein; apical field very short, with one vein only and a few large cells; lateral field rather low, with inferior margin nearly straight; *Sc.* bearing 7 branches. No wings.

*Length* of body 17 mm.; pronot. 5 mm.; ant. fem. 12 mm.; ant. tib. 12 mm.; post. fem. 18.5 mm.; post. tib. 20 mm.; elytra 7.5 mm.

*Range*.—'Hindusthan', without locality (type, B.M.).

## 219. *Parendacustes pendleburyi* n. sp.

(Fig. 162)

*Holotype*: Malaya: Kedah near Jitra, Catchment area (H. M. Pendlebury, 11.IV.1928), ♂ (Selangor Museum).

*Size* small. *Colour* rufous-brown. *Head* as wide as pronotum, almost uniformly rufous with four very feebly marked brown bands on the occiput; frontal rostrum very narrow, the lateral ocelli very close to one another at base. Face shining, yellow with rufous bands beneath the eyes and on the cheeks. Antennae and palpi brown; 4th joint of the maxillary palpi a little shorter than 3rd, 5th long, feebly dilated at apex. *Pronotum* strongly transverse, brown with a few rufous spots, covered with a golden, bent pubescence, studded with long bristles; disk a little irregular, with furrowed median line; lateral lobes with inferior margin ascending backwards, anterior angle subacute. *Abdomen* brown spotted with yellow above, yellowish-brown beneath; subgenital plate feebly narrowing posteriorly, with truncated margin. Cerci very long, brownish. *Legs* long, light rufous, annulated with brown. Anterior tibiae perforated with a very small internal tympanum. Posterior femora relatively short, a little striated with brown at base, darkened at apex with a yellow

ring; posterior tibiae adorned with four brown rings, armed with 4 spines on each margin, short and hooked; externo-median apical spur much longer than the other two; interno-median very long, the superior one reaching a little more than half the length of the metatarsus, which is long, brown with yellowish base, finely serrulated above. *Elytra* scarcely extending to the extremity of abdomen, rounded, brownish; mirror transverse, its anterior angle obtuse, divided a little behind the middle by a sinuated vein; 6 oblique veins, feebly sinuated, equidistant; diagonal vein short, curved, furcate near the base; chords strongly curved, the first one united to the angle of the mirror by a veinlet; apical field very short; lateral field blackish with yellow veins; *Sc.* bearing one branch near the base and 2 or 3 before the apex. *Genitalia* small, forming two groups, the superior ones curved as hooks (fig. 162).

*Allotype*: Malaya: Kuala Tahan, ♀ (British Museum).

Apterous. *Head* and *legs* as in the male. *Abdomen* varied with dark brown and testaceous. *Ovipositor* rather short, feebly curved, with apical valves rather wide, lanceolate, smooth.

*Length* of body 9–10 mm.; post. fem. 9 mm.; elytra ♂ 6 mm.; ovipositor 5.2 mm.

## 220. *Parendacustes latifrons* n. sp.

*Holotype*: Malaya: Pahang, Cameron's Highlands, 4,000–5,000 ft. (H. M. Pendlebury, 10.VI.1935), ♀ (Selangor Museum).

Apterous. *Head* rufous, adorned with 4 brown bands above; frontal rostrum relatively broad, rounded above. Face blackish, adorned with a large pentagonal light spot, occupying a large part of the facial shield and ending in a point towards the anterior ocellus. Eyes projecting forwards; ocelli very small. Antennae and palpi brown; maxillary palpi relatively short, with 4th joint equalling 3rd, 5th a little longer, widening strongly, feebly securiform. *Pronotum* transverse, with anterior margin straight, posterior margin a little concave; disk irregular, varied with brown and yellowish, covered with a fine golden pubescence; lateral lobes almost black, with inferior margin strongly ascending posteriorly. *Abdomen* a little varied with brown and yellowish, finely pubescent. *Legs* neatly annulated with brown; femora and tibiae of the two first pairs with three rings; anterior tibiae presenting a very small tympanum on the internal face. Posterior femora rather thick, adorned with three brown rings and a large, irregular spot towards the base of the external face; posterior tibiae presenting also three brown rings,

feebly serrulated on the external margin, the internal one almost inermous, armed with only 3 internal, 4 external small, yellow spines; supero- and infero-external apical spurs short, the median much longer; infero-internal spur a little longer than the external, the median and superior ones long, subequal; metatarsi rather long, brown with yellow base, very feebly serrulated, the denticles lost among an abundant pubescence. *Ovipositor* rather long, straight with apical valves lanceolate, smooth.

*Length* of body 9 mm.; post. fem. 8 mm.; ovipositor 7 mm.

Differs from the preceding species by the relatively broad frontal rostrum.

### Genus KEMPIOLA Uvarov

1940. *Kempiola* Uvarov, *Ann. Mag. nat. Hist.*, (11) 5, 175.

1924. *Kempiella* Chopard, *Rec. Ind. Mus.*, 26, 87.

*Type*.—*Kempiella longipes* Chopard.

*Range*.—Coromandel Coast and Assam.

Frontal rostrum almost as broad as the first antennal joint. Pronotum strongly transverse; lateral lobes with inferior margin feebly ascending posteriorly. Legs very long; anterior tibiae with a small internal tympanum; posterior femora with long apical filiform part; posterior tibiae armed with 4 spines on each margin; medio-external apical spur equalling the superior one; medio-internal spur much longer than the superior. Elytra of male with a large, triangular mirror, partly reticulated in its posterior part; 3 oblique veins. Female apterous; ovipositor long with small apical valves.

#### *Key to the species of KEMPIOLA*

Eyes very small; posterior tibiae feebly denticulated; size smaller and ovipositor shorter.	<i>longipes</i> (Chop.), p. 252
Eyes much larger; posterior tibiae densely denticulated; size a little larger and ovipositor longer.	<i>maindroni</i> n. sp., p. 254

### 221. *Kempiola longipes* (Chopard)

(Fig. 163)

1924. *Kempiella longipes* Chopard, *Rec. Ind. Mus.*, 26, 87, pl. 5, figs. 22–34.

♂: *Size* medium. *Colour* testaceous marked with dark brown. *Head* small, testaceous; occiput and vertex strongly

convex, covered with black hairs; frontal rostrum as wide as the first antennal joint, rounded at apex; face yellowish, glabrous, shining. Maxillary palpi very long, slender, the last joint scarcely widened at apex. Eyes small, narrow (fig. 163); ocelli absent. *Pronotum* much wider than long, its anterior and posterior margins straight, with a row of bristles; disk covered with a fine golden pubescence with long blackish hairs, chiefly near the median furrow; sides fuscous, the lateral lobes much diverging from the body, with inferior margin rather strongly oblique backwards, anterior angle somewhat rounded. *Abdomen* yellow with sides and apical margin of the tergites brownish, covered with a golden pubescence; 10th tergite presenting two long rounded processes; subgenital plate rather long, subtruncated at apex, with two small blackish spots near the base. Cerci extremely long and slender, much longer than the body. *Legs* long and slender, testaceous, the apex of femora darkened. Anterior tibiae with a small oval tympanum near the base on the inner side; armed at apex with 2 rather long, inferior spurs; tarsi very long, chiefly the metatarsus, which is almost cylindrical, armed with spinules beneath. Intermediate legs similar to the anterior ones. Posterior femora very abruptly narrowed near the middle; posterior tibiae very long, armed with 4 spines on each margin and a few very small denticles between these spines; inferior external apical spur very short, the two superior ones rather long and subequal; internal spurs much longer than the external, the median longer than the superior one; posterior tarsi long, the metatarsus much longer than the other two articles, armed above with a few very small denticles and 2 rather long apical spurs. *Elytra* extending to the apex of the second abdominal tergite, blackish with the anal field and a band along the external margin testaceous; lateral field rather high, blackish. Neuration very abnormal; mirror large, triangular, with a few posterior, more or less closed areas, mixing themselves with the short apical field; 3 oblique veins; chords quite indistinct, except the first one which is united to the mirror by 4 transverse veinlets; Sc. with numerous, parallel, almost straight branches. No wings. *Genitalia* subtriangular, formed of a superior part divided into three acute processes, and an inferior bifid part.

♀: General shape and colour as in the male, but apterous; first abdominal tergite blackish with a white band along the posterior margin; 2nd and 3rd tergites yellowish laterally, the rest more or less completely brownish; subgenital plate



rather elongated, slightly notched at apex. *Ovipositor* long, very feebly curved upwards, with apical valves very little enlarged, their margins smooth, the superior ones finely striated.

*Length* of body 10.5–12 mm.; pronot. 2.5 mm.; post. fem. 14 mm.; post. tib. 16 mm.; cerci 17 mm.; elytra ♂ 5 mm.; ovipositor 9.5 mm.

*Range*.—INDIA: Assam: Garo Hills; Siju Cave (type, I.M.).

## 222. *Kempiola maindroni* n. sp.

(Fig. 164)

*Holotype*: Coromandel Coast: Gangi (M. Maindron, 1901), ♀ (Paris Museum).

Very close to the preceding, a little larger. *Head* whitish above, with occiput brown; frontal rostrum nearly as broad as the first antennal joint. Face and cheeks dark brown. Eyes much larger than in *longipes*, rather strongly protruding (fig. 164); ocelli very small. Antennae yellowish. Palpi wanting. *Pronotum* much wider than long, with anterior margin feebly notched in the middle, posterior margin straight; disk furrowed in the middle, whitish with a wide dark brown band along the anterior margin; lateral lobes almost black, with the anterior angle yellowish; inferior margin rather strongly ascending posteriorly, anterior angle rounded. Meso- and metanotum rufous-brown, with whitish posterior margin. *Abdomen*: Tergites yellowish with about 10 brown spots disposed in a longitudinal line; epiproct almost quadrangular; subgenital plate feebly notched at apex. *Legs*: Anterior wanting; median very long and slender. Posterior femora long, rather strongly dilated at base, with apical filiform part occupying a third of the total length; posterior tibiae very long, finely and densely serrulated at base and between the spines, armed with 4 spines on each margin; medio-internal apical spur much longer than the superior; posterior metatarsi very long, rounded, armed above with small denticles. *Ovipositor* long, with apical valves smooth, a little wider than in *longipes*.

*Length* of body 12.5 mm.; pronot. 2.7 mm.; post. fem. 17.5 mm.; post. tib. 21 mm.; ovipositor 15 mm.

Differing from the preceding by being a little larger in size, by the eyes much more developed and the posterior tibiae with very numerous and rather strong denticles.

## Genus PHALANGOPSINA Chopard

1933. *Phalangopsina* Chopard, *Rev. Suisse Zool.*, **40**, 165.

*Type*.—*Arachnopsis dubius* Bolivar.

*Range*.—South India.

Frontal rostrum broad. Pronotum strongly transverse, a little widening in front. Anterior and median legs long and slender; anterior tibiae unperforated. Posterior femora with very short apical filiform part; supero-internal apical spur of the posterior tibiae longer than the median. Elytra of male as long as pronotum, without a distinct mirror. Female apterous.

*Key to the species of PHALANGOPSINA*

- |  |                               |
|--|-------------------------------|
| Larger (♂ 11.5 mm.); last joint of maxillary palpi very large, securiform; inferior part of genitalia with two long processes. | <i>palpata</i> n. sp., p. 256 |
| Smaller (♂ 6 mm.); last joint of maxillary palpi moderately enlarged at apex; inferior part of genitalia without process.      | <i>dubia</i> (Bol.), p. 255   |

**223. *Phalangopsina dubia* (Bolivar)**

1900. *Arachnopsis dubius* Bolivar, *Ann. Soc. ent. Fr.*, **68** (1899), 803.

1933. *Phalangopsina dubia*, Chopard, *Rev. Suisse Zool.*, **40**, 165, figs. a, b.

*Colour* fulvo-testaceous, varied with brown, pubescent. *Head* as wide as pronotum, presenting on the occiput 5 narrow and feebly visible yellowish lines. Face with a shining brown median band; a band of the same colour beneath each eye. Antennae brown with pale rings. Maxillary palpi rather long; 4th joint a little shorter than 3rd and 5th, the latter rather strongly widening at apex. *Pronotum* brown with fulvous markings, covered with a fine pubescence mixed with black bristles. *Legs* fulvous, annulated with brown. Posterior femora with very short apical filiform part, their external face striated with brown; posterior tibiae with superior margins finely serrulated and armed with 4 spines.

♂: *Elytra* as long as pronotum, with straight internal margin, rounded angle, feebly overlapping on the middle line; disk coriaceous, with 4 veins which are oblique, feebly projecting, the first near the edge (*Cu.*) furcate. *Genitalia* plain, forming a short piece, widely notched at apex.

♀: Apterous; subgenital plate small, very feebly notched at apex. *Ovipositor* rather long, straight, with apical valves feebly enlarged, lanceolate, smooth.

*Length* of body ♂ 6 mm., ♀ 9–10 mm., pronot. ♂ 1.2 mm., ♀ 1.5 mm., post. fem. ♂ 5.5 mm., ♀ 8–8.5 mm.; elytra ♂ 1.2 mm.; ovipositor 9–10 mm.

*Range*.—INDIA: Madras: Madura (type, M.M.); Kodaikanal (P.M.); Palni Hills; Pumbarai (G.M.).

## 224. *Phalangopsina palpata* n. sp.

(Figs. 168, 169)

*Holotype*: Madras: Palni Hills, Kodaikanal, 6,000–6,800 ft. (F. H. Gravely, April 1929) ♂ (Dehra Dun Forest Research Institute).

Very close to the preceding. *Colour* testaceous-brown varied with brown spots and small bands. *Head* small, a little narrower than the pronotum in front, pubescent with two rows of long bristles on the vertex; occiput presenting four very feebly marked brown bands; frontal rostrum a little wider than the first antennal joint, rounded at top. Face yellowish, shining, presenting a narrow median brown band, extending to the clypeus; cheeks wholly brown. Maxillary palpi brownish; 4th joint a little shorter than 3rd, feebly widening, 5th very large, securiform. Antennae brown with small yellowish rings. Eyes feebly protruding; ocelli small. *Pronotum* transverse, with straight anterior and posterior margins; disk convex, a little irregular, light brown with a few small dark spots, covered with a whitish pubescence mixed with black bristles which tend to form horizontal lines; lateral lobes dark brown, with inferior margin feebly ascending posteriorly, anterior angle rounded, diverging from the disk. *Abdomen* yellowish-brown, pubescent; tergites adorned with small, brown, longitudinal bands; sides wholly brown; epiproct quadrangular. *Legs* rather long, annulated with brown; anterior tibiae unperforated; posterior tibiae armed with 4 spines on each side. *Elytra* short, feebly overlapping on the median line, rounded at apex; disk a little thickened, with feebly distinct veins, internal and apical margins a little curled; veins of the dorsal field three in number, irregularly anastomosed; lateral field rather low, dark brown, without any vein. *Genitalia* composed of three superposed pieces, the two superior ones feebly sclerified, the inferior divided and bearing a long process, articulated at base (figs. 168, 169).

# Genus ARACHNOMIMUS Saussure

1878. *Arachnopsis* Saussure, *Mém. Soc. Genève*, 25, 442.

1897. *Arachnomimus* Saussure, *Biol. Centr. Amer. Orth.*, 1, 251.

*Type*.—*Arachnopsis nietneri* Saussure.

*Range*.—Ceylon, India, Java.

Both sexes apterous. Frontal rostrum narrow. Legs very long; anterior tibiae non-perforated; median apical spur of the posterior tibiae the longest on both sides.

## Key to the species of ARACHNOMIMUS

- 1 General colouration very pale, uniformly yellow-testaceous; eyes small. *microphthalmus* Chop., p. 262  
 Colouration more or less varied with brown or black; eyes larger. . . . . 2
- 2 Colouration rather bright, varied with black or rufous. . . . . 3  
 Colouration rather dull, varied with testaceous and brown. . . . . 4
- 3 Head and legs rufous; face black; pronotum black with posterior margin yellow; abdomen black, the two first tergites with posterior margin yellow. . . . . *lepidus* n. sp., p. 261  
 Head, pronotum and legs bright rufous; face rufous; meso-, metanotum and abdomen black with two large light spots on the metanotum. *bicolor* Chop., p. 261
- 4 Antennae brownish with a large white ring at some distance from the base. *annulicornis* Chop., p. 259  
 Antennae without white ring. . . . . 5
- 5 Maxillary palpi very long, the fifth joint abruptly and feebly enlarged near the apex only. . . . . *nietneri* (Sauss.), p. 257  
 Maxillary palpi relatively short, the fifth joint rather strongly and regularly dilated at apex. *brevipalpis* n. sp., p. 259

## 225. *Arachnomimus nietneri* (Saussure)

(Figs. 167, 170)

1878. *Arachnopsis nietneri* Saussure, *Mém. Soc. Genève*, 25, 442.

1925. *Arachnomimus nietneri* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 522. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 66, fig. 13a. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 558.

*Size* rather small. *Colour* rufous varied with yellow.

*Head*: Frontal rostrum narrow; anterior ocellus at apex of the

rostrum. Face adorned with a yellow longitudinal band widening towards the clypeus. Palpi very long (fig. 170). *Pronotum* transverse; disk feebly convex, irregular, furrowed in the middle; lateral lobes with inferior margin ascending

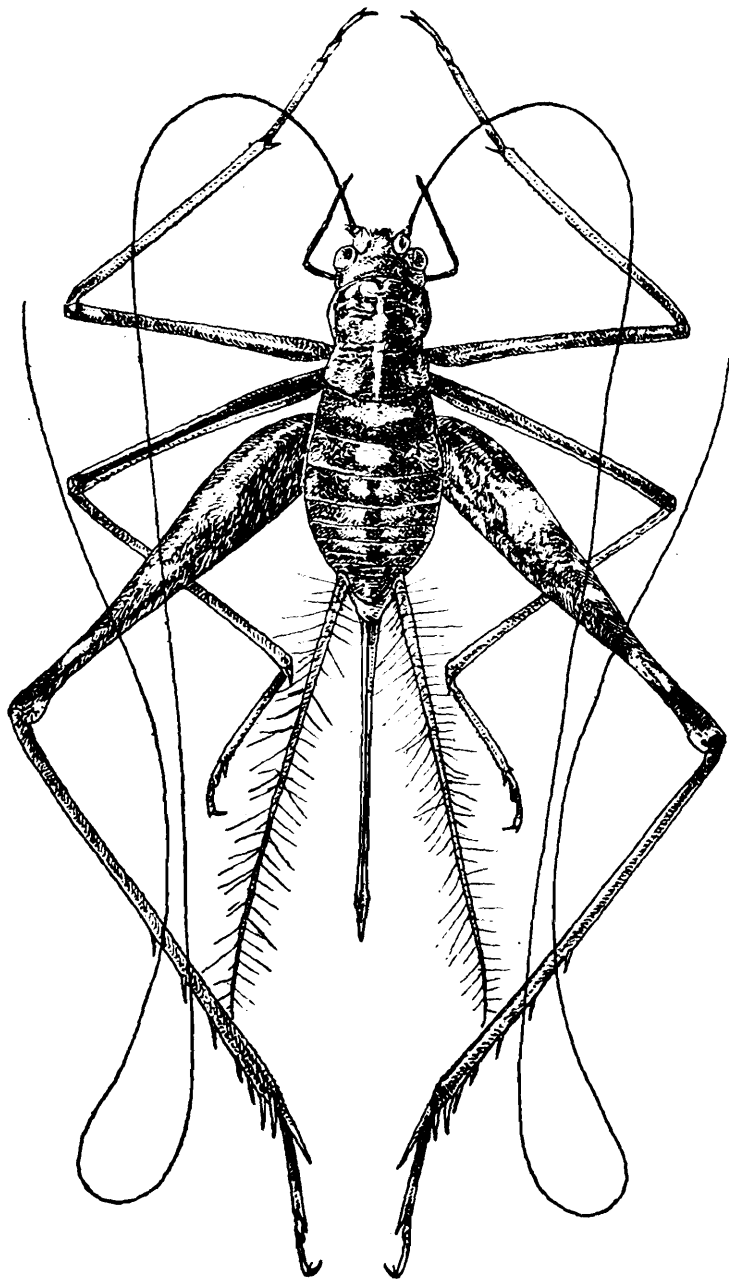


FIG. 167. *Arachnomimus nietneri* (Sauss.), ♀ ( $\times 3.6$ ).

posteriorly. *Abdomen* varied with brown and yellowish. Cerci very long. *Legs* very long; anterior and median femora and tibiae annulated with rufous. Posterior femora with a long filiform apical part; posterior tibiae finely serrulated,

pubescent, armed with 4 spines on each margin; median apical spur longer than the superior one on each side; posterior metatarsi very long, with one row of denticles mixed among the pubescence. *Genitalia* of male short, divided into two acute lobes. *Ovipositor* of the female long, straight, with apical valves lanceolate, smooth, acute at apex.

*Length* of body 12 mm.; pronot. 2 mm.; post. fem. 12.5–14 mm.; post. tib. 14–16 mm.; ovipositor 9 mm.

*Range*.—INDIA: Travancore (Kerala); Cochin, forest tramway (P.M.). CEYLON (type, B.M.): Hakgala; Wellawaya; Bintenne; Trincomalee; Peradeniya (Col. M.); Labugama; Mousakande; Gammaduwa; Polomaruwa (Sandrasagara).

## 226. *Arachnomimus brevipalpis* n. sp.

(Fig. 171)

*Holotype*: Ceylon: Ohiya, 6,500 ft., ♀ (Paris Museum).

Very close to the preceding. Face wholly testaceous-brown, shining. Maxillary palpi relatively short, with last joint rather strongly dilated at apex (fig. 171). *Legs* a little shorter than those of *nietneri* (Sauss.), feebly annulated with brown. Posterior tibiae without denticles at base and between the spines.

*Length* of body 9 mm.; post. fem. 11.2 mm.; post. tib. 13 mm.; ovipositor 10 mm.

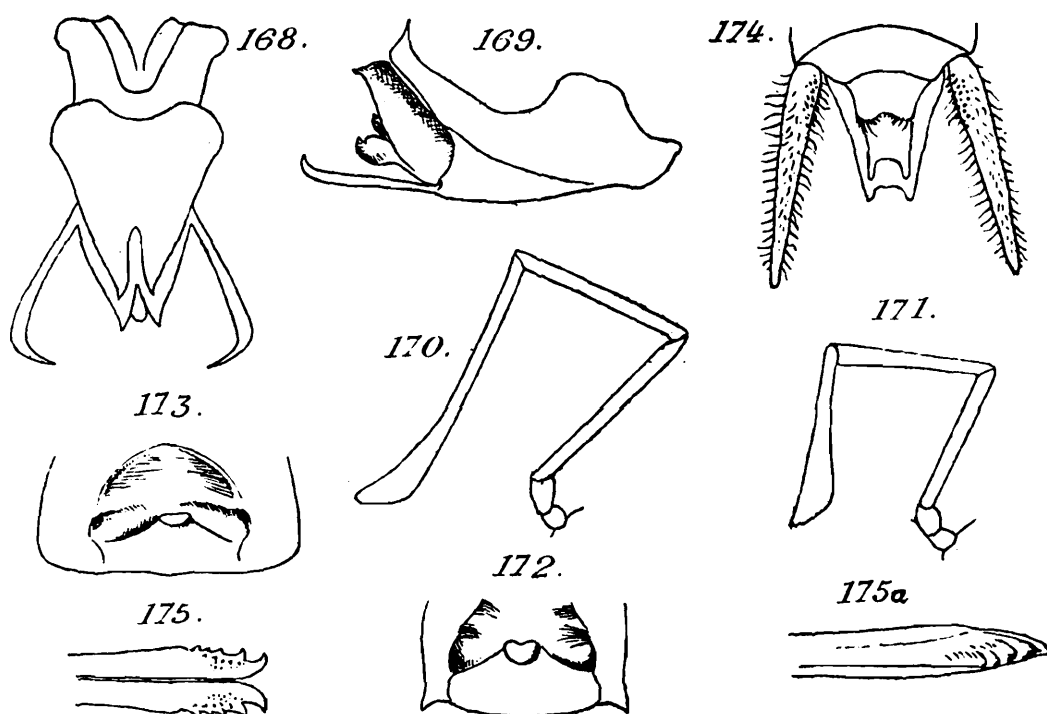
This species has certainly been confused with *nietneri*.

## 227. *Arachnomimus annulicornis* Chopard

1936. *Arachnomimus annulicornis* Chopard, *Ceyl. J. Sc.*, (B) 20, 67, fig. 13b. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 558.

*Colour* testaceous, varied with brown. Frontal rostrum very narrow. Eyes strongly projecting laterally. Face yellow with a brown band on each side. Maxillary palpi extremely long and slender, the 5th joint a little widened at apex. Antennae rather thick, brownish with a large white ring at about 35 millimetres from base. *Pronotum* transverse with anterior margin feebly notched in the middle, posterior margin straight; disk convex, a little irregular, yellowish, darkened on the sides; lateral lobes brown with yellowish anterior angle, inferior margin strongly ascending posteriorly. *Mesonotum* short, brown; *metanotum* yellowish marked with brown at base and on the sides. *Abdominal* tergites darkened along their posterior margin. *Cerci* very long. *Legs* very

long and slender. Anterior and median femora brown at apex with a large, light ring before the brown part; tibiae adorned with three brown rings; metatarsi extremely long and slender, yellowish at base, brown at apex. Posterior femora long, feebly dilated at base, with filiform apical part extending to almost half the total length; their external face adorned with two oblique brown bands, their apex darkened; tibiae with 4 brown rings, serrulated on their whole length, armed with 3 small spines on each margin; apical spurs rather short except the medio-internal one which is long and a



FIGS. 168 to 175a. 168. Genitalia of *Phalangopsina palpata*. 169. *id.*, lateral view. 170. *Arachnomimus nietneri*, maxillary palpus. 171. *id.*, of *A. brevipalpis*. 172. *Oecanthus indicus*, glandular pit of metanotum. 173. *id.*, of *O. rufescens*. 174. *Xabea recticercis*, abdominal extremity of male. 175. *id.*, extremity of ovipositor. 175a. *id.*, lateral view.

little curved; medio-external one also a little longer than the other two; metatarsi long, a little compressed. *Genitalia* formed of a large superior piece, widely notched at apex, and two inferior pieces produced inside in a curved tooth.

*Length* of body 12 mm.; post. fem. 18 mm.; post. tib. 20 mm.

Close to the preceding, but a little larger with different genitalia; it is also easy to distinguish by the peculiar colour of the antennae.

*Range*.—CEYLON: Buttala; Uva P. (type, Col. M.); Bintenne (Col. M.).

## 228. *Arachnomimus bicolor* Chopard

1928. *Arachnomimus bicolor* Chopard, *Spol. Zeyl.*, **14**, 205, pl. 15, figs. 15-17. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 66. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 558.

*Size* rather small. *Colouration*: Head, pronotum and legs bright rufous; mesonotum, metanotum and abdomen black with two large yellow spots on the metanotum. *Head*: Frontal rostrum narrow, with parallel margins; face rufous, shining. Palpi brown; maxillary palpi very long, slender, with 5th joint widening only quite near the apex. Eyes small, higher than wide; ocelli very small. *Pronotum* very transverse, covered with a silky pubescence, with posterior margin blackish; lateral lobes high, with inferior margin slightly ascending posteriorly. *Abdomen* blackish, pubescent, with the two first tergites slightly spotted with yellow laterally. *Cerci* very long. *Legs* very long and slender. Posterior femora rather strong, uniformly rufous; posterior tibiae slender, armed with 5 spines on each side, the last of which is short; external spurs moderately long, the median longer than the other two; internal spurs very long, especially the median, which is a little curved; metatarsi very long, rounded. Subgenital plate of male long, narrow; *genitalia* short, forming two nearly cylindrical processes. Subgenital plate of female small; *ovipositor* rather long, straight, with apical valves small, very acute, the inferior longer than the superior.

*Length* of body 8-8.5 mm.; post. fem. 9 mm.; cerci 11.5 mm.; ovipositor 7 mm.

Smaller than the preceding and easily recognizable by its colouration.

*Range*.—CEYLON: Horowupotana (type, Col. M.); Vavuniya (Col. M., B.M.).

## 229. *Arachnomimus lepidus* n. sp.

*Holotype*: Madras: Salem dist., Shevaroy Hills, 4,000 ft. (P. S. Nathan, 6.IX.1934), ♂ (Philadelphia Museum).

*Head* small, rufous above with a feeble blackish pubescence; frontal rostrum convex, narrower than the first antennal joint. Face long, black, shining; cheeks black. Eyes large, piri-form; ocelli small, round, the lateral ones at base of the rostrum, the anterior nearly at apex. Antennae (broken at base) with two first joints rufous. *Pronotum* transverse,



blackish with a narrow yellow band along the posterior margin; anterior margin feebly convex, posterior margin straight; disk convex, finely furrowed in the middle, feebly pubescent; lateral lobes almost triangular, extended outwards. Mesonotum very short, metanotum long; both black with posterior margin yellow. Inferior part of the thorax yellowish; pleurae blackish. *Abdomen* black above, yellowish beneath, the two first tergites with a narrow yellow band along the posterior margin; epiproct quadrangular, with rounded angles, presenting a small impression at base, blackish with base yellowish; subgenital plate rectangular, longer than broad, with feebly convex posterior margin. Cerci rufous. Anterior legs wanting; median and posterior legs rufous, very long. Posterior femora very long, rather strongly swollen at base, but with a filiform part equalling nearly half the total length; posterior tibiae longer than the femora, armed with 4 spines on each superior margin, finely denticulated at base and between the spines; external apical spurs rather short, the superior a little longer than the inferior one, the median almost double; internal spurs much longer than the external, chiefly the median one which extends almost to the middle of the metatarsus; this one is extremely long and slender, very feebly compressed, presenting on the superior margins 5 internal, 7 external small denticles; apical spurs short and somewhat thickened, with inferior margin very finely denticulated; 2nd joint small, compressed, 3rd joint rather long.

*Length* of body 9 mm.; pronot. 2 mm.; width of pronot. 3.5 mm.; post. fem. 14 mm.; post. tib. 15.5 mm.; post. metatarsus 4.5 mm.

This pretty species is easily recognized by its very peculiar colouration.

### 230. *Arachnomimus microphthalmus* Chopard

1929. *Arachnomimus microphthalmus* Chopard, *J. F. M. St. Mus.*, 14, 370, figs. 4, 5.

♀: *Colour* testaceous-yellow, covered with a silky pubescence and presenting sparse, long, erect bristles. *Head* small, a little narrower than pronotum; frontal rostrum narrow, rounded at apex; face long, yellow. Palpi brownish; maxillary palpi with 4th joint much longer than 3rd, 5th equal to 4th, a little curved, obliquely truncated at apex which is feebly enlarged. Antennae brownish. Eyes relatively very small, shorter than the first antennal joint; no

ocelli visible. *Pronotum* transverse, with anterior and posterior margins straight; disk convex, uniformly yellowish; lateral lobes presenting the same colouration, with inferior margin rounded. *Mesonotum* very short; *metanotum* and abdominal tergites yellowish. *Cerci* very long. *Legs* rather long and slender, yellowish. Anterior tibiae unperforated; anterior and median metatarsi extremely long. Posterior femora rather thick at base; posterior tibiae finely serrulated, chiefly along the external margin, and armed with 4 spines on each margin; these spines are slightly curved at apex, the external being longer than the internal ones; on each side, the first and the fourth spines are shorter than the other two; superior and inferior external spurs short, median twice as long; infero-internal spur short, although longer than the infero-external one, median and supero-internal long, the median longer by about a quarter than the superior one; metatarsi long and slender, pubescent and minutely serrulated above. *Ovipositor* incompletely developed, the type being immature.

*Length* of body 9 mm.; post. fem. 10.5 mm.; post. tib. 10.5 mm.

*Range*.—MALAYA: Selangor; Batu Caves (type, Sel. M.).

### Genus OPILIONACRIS Sjöstedt

1909. *Opilionacris* Sjöstedt, *Kilimandjaro-Meru Exp.*, 3, 116.

*Type*.—*Opilionacris kilimandjarica* Sjöstedt.

*Range*.—East Africa, W. Bengal?

Both sexes apterous; differing from *Arachnomimus* by the supero-internal apical spur of the posterior tibiae being longer than the median one.

### 231. *Opilionacris* (?) *annandalei* (Chopard)

1928. *Speluncacris* (?) *annandalei* Chopard, *Rec. Ind. Mus.*, 30, 26, figs. 42, 43.

♀: *Size* medium; apterous. *Colouration* rufous-brown varied with dark brown. *Head* narrower than pronotum in front; occiput and vertex weakly convex, brown with five narrower light stripes; frontal rostrum narrower than the first antennal joint, rounded. Face shining, rufous, with a pale band in the middle. Palpi brown, rather long; 4th joint of maxillary palpi a little longer than 3rd, 5th equal to 4th, rather strongly dilated at apex, with superior margin concave. Antennae rather thick, profusely ringed with light brown and yellow. Eyes rounded, slightly projecting; ocelli

very small, the anterior one in a small depression nearly at apex of the rostrum. *Pronotum* strongly widening a little before the middle, with anterior and posterior margins nearly straight; disk convex, a little embossed, dark brown with rufous markings; lateral lobes with inferior margin strongly rounded posteriorly. Meso-, metanotum and abdominal tergites brown with a golden pubescence, adorned with a light median band, most conspicuous on the anterior segments. *Legs* ringed with brown; anterior tibiae unperforated. Posterior femora rather thick, obliquely striated with brown on the external face, with a filiform apical part; posterior tibiae serrulated and armed with 4 spines on each margin, the last one much shorter than the others, and the external ones longer than the internal; superior apical spur longer than the median on each side, the internal extending to the middle of the metatarsus; this is long, slender, bearing a few denticles on the superior margin. *Ovipositor* long, straight, with apical valves small, acute at apex.

*Length* of body 11 mm.; pronot. 3 mm.; width of pronot. 3.5 mm.; post. fem. 10 mm.; ovipositor 9.5 mm.

This species is unsufficiently known from a single female; it is only when the male is known that it will be possible to decide to which genus it really belongs.

*Range*.—INDIA: W. Bengal: Darjeeling; Sureil (type, I.M.).

### Genus ASPIDOGRYLLUS Chopard

1933. *Aspidogryllus* Chopard, *Stylops*, 2, 119.

*Type*.—*Aspidogryllus singularis* Chopard.

*Range*.—South India.

This genus is close to *Arachnomimus* but quite remarkable for the extraordinary shape of the first abdominal tergite which is very large and produced above the other tergites in the shape of a triangular shield. Female unknown.

### 232. *Aspidogryllus singularis* Chopard

(Fig. 176)

1933. *Aspidogryllus singularis* Chopard, *Stylops*, 2, 119, fig. 6.

♂: *Size* small; apterous. *Colour* fulvous varied with brown. *Head* as wide as pronotum; vertex short, strongly convex; frontal rostrum wide, furnished with brown bristles; face rufous, shining. *Palpi* moderately long, brownish; 4th

joint equalling the 3rd, 5th a little longer, with superior margin a little concave, enlarged at apex. Antennae rufous. Eyes small, as long as the first antennal joint; ocelli scarcely visible. *Pronotum* wide, with anterior and posterior margins straight; disk convex, rufous with a narrow brown band along the posterior margin; lateral lobes concolorous, somewhat widening and projecting externally, with inferior margin ascending posteriorly. *Mesonotum* very short, brown. *Metanotum* large, widely rounded posteriorly, furnished with an abundant pubescence and somewhat hollowed on the disk, in the shape of a small cup. First abdominal tergite very large

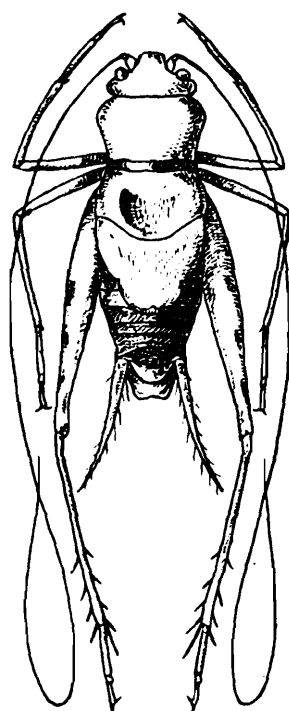


FIG. 176. *Aspidogryllus singularis*, ♂  
(after Chopard) ( $\times 4.4$ ).

and produced above the other tergites in the shape of a triangular shield; this shield is pubescent and provided laterally with lamellar expansions, the apex forming a small hook; the other abdominal tergites are regular, narrowly margined with brown; epiproct pentagonal. *Abdomen* yellowish below; subgenital plate large, rounded. Cerci rather long. *Legs* long, rufous, pubescent; anterior tibiae unperforated; anterior and median metatarsi very long. Posterior femora moderately long, their apical filiform part short, their external face adorned with feebly marked brown bands; posterior tibiae armed with 4 spines on each margin, non-serrulated between the spines, the external spines a little

longer than the internal ones; superior and median internal apical spurs long, the superior a little longer than the median one; supero-external spur longer than the median; posterior metatarsi extremely long, rounded. *Genitalia* projecting, partly membranaceous.

*Length* of body 7.5 mm.; pronot. 1.5 mm.; metanotum 1.4 mm.; 1st abdominal tergite 1.5 mm.; post. fem. 6.2 mm.

*Range*.—INDIA: Madras: Nilgiris; Ootacamund, 6,700–8,000 ft. (type, B.M.).

## 10. Family OECANTHIDAE

The *Oecanthidae* present the same type of tibial armature as the *Phalangopsidae*, but they differ completely from them in all other features; as a matter of fact, they are very different from all the other Gryllids. They are very slender insects of a pale whitish, greenish or yellowish colouration. Head directed forwards; pronotum long, narrowing in front; metanotum presenting in the male a large, glandular pit. Legs rather long, slender; anterior tibiae with a large, oval tympanum on both inner and outer sides; posterior femora feebly dilated; posterior tibiae finely serrulated on the superior margins, which may be armed or not with a few small spines. Elytra almost transparent, presenting in the male a large mirror, divided by a vein. Ovipositor with apical valves wide, truncated, strongly indentated.

The species of this family live on shrubs. They lay their eggs in small stems or branches; the number and the disposition of the eggs laid is variable and appears to be characteristic for each species; but has not been recorded in any Indian species.

### *Key to the genera of OECANTHIDAE*

- |   |                                |
|---|--------------------------------|
| Posterior tibiae serrulated and armed<br>with a certain number of small spines .. | <i>Oecanthus</i> Serv., p. 266 |
| Posterior tibiae serrulated, but without<br>spines.                               | <i>Xabea</i> Walk., p. 270     |

### Genus OECANTHUS Serville

1831. *Oecanthus* Serville, *Ann. Sc. nat.*, 22, 134.

*Type*.—*Gryllus pellucens* Scopoli.

*Range*.—Cosmopolitan.

Characters of the family as given above.

*Key to the species of OECANTHUS*

- |   |  |                                 |
|---|--|---------------------------------|
| 1 | The two first antennal joints with a black point. . . . .  | 2                               |
|   | The two first antennal joints without black markings. . . . .  | 3                               |
| 2 | Head and pronotum presenting a median yellow band, bordered on each side by a fine black line. . .       | <i>bilineatus</i> Chop., p. 269 |
|   | Head and pronotum without median yellow band. . . . .  | <i>henryi</i> Chop., p. 269     |
| 3 | Size larger (17 mm.); anterior tibiae very slightly dilated, the tympana long and narrow. . . . .        | <i>rufescens</i> Serv., p. 268  |
|   | Size smaller (14 mm.); anterior tibiae more strongly dilated at base, the tympana not so narrow. . . . . | <i>indicus</i> Sauss., p. 267   |

**233. *Oecanthus indicus* Saussure**

(Fig. 172)

1878. *Oecanthus indicus* Saussure, *Mém. Soc. Genève*, **25**, 454.  
 Bolivar, 1900, *Ann. Soc. ent. Fr.*, **68** (1899), 803.  
 Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) **15**, 523.  
 Chopard, 1933, *Rev. Suisse Zool.*, **40**, 166. Chopard,  
 1936, *Ceyl. J. Sc.*, (B) **20**, 65. Sandrasagara, 1954,  
*J. Bombay nat. Hist. Soc.*, **52**, 557.

Slender, glabrous, whitish with almost transparent elytra. *Pronotum* elongated, narrowing in front. Glandular pit of the metanotum of the male presenting a rather large angular projection, ending in a big, rounded bud (fig. 172). *Legs*: Anterior tibiae strongly dilated in the basal half, with very large, oval tympana; posterior femora slender. *Elytra* longer than the abdomen, narrow in the male with mirror more than one and a half times as long as wide; elytra of female with regular, oblique veins. Wings a little longer than the elytra. *Ovipositor* short.

*Length* of body ♂ 13.5 mm., ♀ 15 mm.; pronot. ♂ 2 mm., ♀ 2.2 mm.; post. fem. ♂ 7 mm., ♀ 7.2 mm.; elytra ♂ 11 mm., ♀ 11.5 mm.; ovipositor 4.5 mm.

*Range*.—INDIA: Bombay (Saussure, type, G.M.). Bihar: Pusa (P.M.). Madras: Kodaikanal (P.M.); Nilgiris (G.M.); Coimbatore (Phil. M.). Andaman Islands: Port Blair (P.M.). CEYLON: Colombo; Trincomalee; Peradeniya (Col. M.); numerous localities (Sandrasagara). MALAYA: Kuala Lumpur. Penang (B.M.). MALAY ARCHIPELAGO. PHILIPPINE ISLANDS.

**234. *Oecanthus rufescens* Serville**

(Fig. 173)

1839. *Oecanthus rufescens* Serville, *Ins. Orth.*, 361. Saussure, 1878, *Mém. Soc. Genève*, **25**, 456. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 65. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 558.

Close to the preceding but larger. Glandular pit of the metanotum of the male less strongly projecting, with smaller apical bud (fig. 173). *Elytra* of male a little wider, the mirror one and a half times as long as broad, more or less tinged with rufous, chiefly along the lateral margins. *Legs*: Anterior tibiae not so strongly dilated at base.

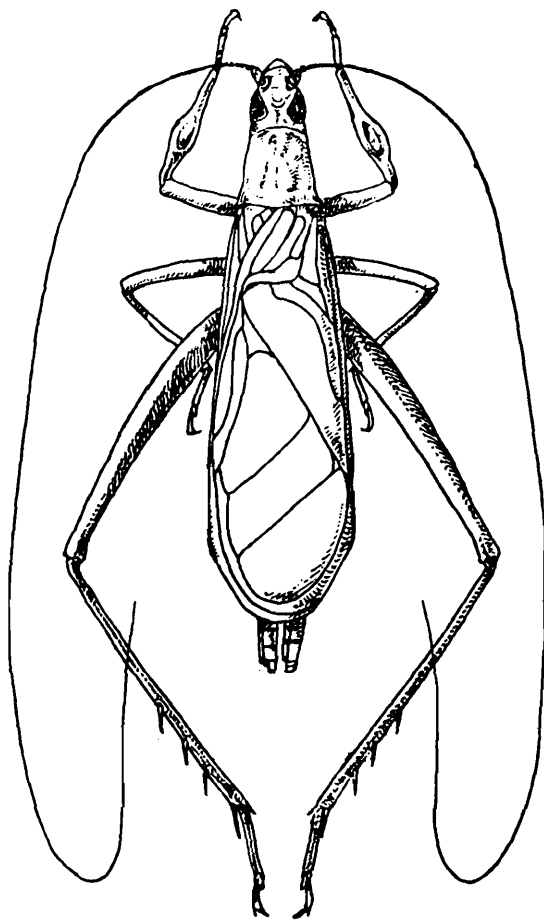


FIG. 177. *Oecanthus henryi* Chop., ♂ ( $\times 6.0$ ).

*Length* of body 14.5–17 mm.; length with wings 20–23 mm.; post. fem. 7–9 mm.; elytra 11–14 mm.; ovipositor 7.5–9 mm.

*Range*.—INDIA: Bombay (type, P.M.). Madras: Coimbatore (Phil. M.). CEYLON: Bandarawela (Col. M.).

Widespread in Malaya, Papuasias to Australia.

**235. *Oecanthus henryi* Chopard**

(Fig. 177)

1936. *Oecanthus henryi* Chopard, *Ceyl. J. Sc.*, (B) 20, 65. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 558.

*Colouration* greenish; first and second joints of antennae marked with a small black point on internal face; occiput showing a similar small point behind each eye. *Legs*: Anterior tibiae very much dilated, the widened part occupying at least half the total length; tympana very large, lengthened. Posterior femora finely spotted with brown on external face; tibiae with spines, denticles and apical spurs black at apex; 3 spines on each margin. All the tibiae are marked with a small black spot above, at base. *Abdominal* cerci strongly swollen at base.

♂: *Elytra* of the male rather narrow; the mirror one and a half times as long as wide. Wings caudate.

♀: *Elytra* of the female with rather distant, oblique, somewhat irregular veins; transverse veinlets forming large areolae, a little longer than wide. Subgenital plate triangular, with apex a little rounded. *Ovipositor* rather short.

*Length* of body 9 mm.; length with wings 13 mm.; elytra ♂ 9 mm., ♀ 8.5 mm.; ovipositor 4.5 mm.

*Range*.—CEYLON: Wellawaya (type Col. M.); Marichchukadi; Colombo; Battaramulla; Kalawewa; Pullumalai; Deniyaya (Sandrasagara).

**236. *Oecanthus bilineatus* Chopard**

1937. *Oecanthus bilineatus* Chopard, *Ind. Forest. Rec.*, N.S., 3, 26.

*Size* and general habitus similar to *O. indicus*. *Head* and *pronotum* presenting a median yellow band which is smooth, bordered on each side by a fine black line. Antennae with 1st and 2nd joints marked with a big, somewhat callous black spot. *Legs*: Anterior tibiae with a very pronounced dilatation, occupying nearly half the total length; internal tympanum very large. Posterior tibiae armed with 3 small spines on each margin.

♂: *Elytra* rather large, presenting two small black spots near the anal knot; mirror a little longer than wide, divided above the middle. Wings extending only little beyond the elytra.

♀: *Elytra* with regular, somewhat oblique veins, presenting false veins between the principal ones; transverse veinlets a



little irregular, forming rectangular areolae. *Ovipositor* short and thick, with a strong, curved apical tooth.

*Length* of body 11 mm.; length with wings 14 mm.; elytra 9.5 mm.; ovipositor 4.5 mm.

Close to the preceding from which the male differs in the elytra being wider and spotted with black and in the colouration of the head and pronotum.

*Range*.—INDIA: Madras: North Salem; Aiyur (type, F.R.I., Dehra Dun); Jawalagiri; Kottur.

### Genus XABEA Walker

1869. *Xabea* Walker, *Cat. Derm. Salt. Br. M.*, 1, 109.

*Type*.—*Xabea decora* Walker.

*Range*.—Malaya, Java, Sumatra, Sarawak, New Guinea, N. Australia.

Shape and general aspect of *Oecanthus*, but the posterior tibiae with superior margins without spines.

#### *Key to the species of XABEA*

- |   |   |                                   |
|---|---|-----------------------------------|
| 1 | Elytra of female presenting brown lines along the principal veins (male unknown). | <i>zonata</i> n. sp., p. 272      |
|   | Colouration uniformly yellowish or greenish.                                      | 2                                 |
| 2 | Elytral of male very broad...   | <i>latipennis</i> n. sp., p. 271  |
|   | Elytra of male not especially broad.  | <i>recticercis</i> n. sp., p. 270 |

### 237. *Xabea recticercis* n. sp.

(Figs. 174, 175 and 175a)

*Holotype*: Malaya: Selangor (F. R. I. Kepong, 10.I.1957), ♂; *allotype*: same locality, ♀ (British Museum).

♂: *Size* rather small, slender. *Colour* very pale yellowish. *Head* with three small rufous lines above; face presenting a few spots of the same colour, specially visible at base of the labrum. Palpi long and slender. Antennae relatively thick at base, very pubescent, presenting two or three small blackish rings towards the extremity. *Pronotum* a little longer than wide posteriorly, feebly narrowing in front, with posterior margin slightly elevated, sides laterally expanded. *Abdomen* a little compressed; 10th tergite large, strongly convex; epiproct with posterior margin rounded, feebly notched in the middle, provided with long hairs. Subgenital plate long, rounded at top, presenting two rather strong,

diverging oblique keels at base. Cerci short, straight, thick at base, blunt at apex. *Legs* of the same colour as the body; anterior tibiae rather feebly dilated in their basal third, with very large internal tympanum, external one smaller. Posterior femora slender; tibiae quite unarmed, *i.e.* possessing neither spines nor denticles. Claws of the tarsi short and thick, bifid at apex. *Elytra* transparent, with a few very pale brown spots towards the apex; mirror nearly as broad as long, with anterior angle a right angle, rounded posteriorly, divided a little before the middle by a straight vein; apical field presenting 4 large cells. Wings rather lengthily caudate, their anterior field feebly tinged with brownish. *Genitalia* in the shape of a thin plate notched at apex (fig. 174).

♀: *Head*, *pronotum* and *legs* as in the male. *Elytra* slightly smoky; dorsal field presenting 3 strongly anastomosed veins and 3 rows of large cells, almost square along the cubital vein, polygonal in the other parts; lateral field transparent, *Sc.* with 5 branches. Ninth abdominal tergite remarkably large, depressed in the middle, with two strong lateral keels, which are undulating and a little flattened above; subgenital plate small, presenting at base two diverging carinae extending to the preceding sternite. *Ovipositor* short, straight; apical valves small, oval, ridged on their external face; seen from beneath they present several teeth directed outwards as in *Oecanthus* (figs. 175, 175a).

*Length* of body 8 mm.; length with wings ♂ 15 mm., ♀ 14 mm.; post. fem. 5.5 mm.; elytra ♂ 9 mm., ♀ 8.5 mm.; ovipositor 4 mm.

The female of this species is very remarkable in the shape of the valves of ovipositor which are oval and not square as in *Oecanthus*; it is very close to the Papuan *Xabea podoscirtoides* Chop., from which it differs in the thick and very pubescent antennae, the lateral lobes of the pronotum, which are expanded on the same level as the disk; in the female, the elytral venation is rather different with its row of regular cells along the cubital vein.

### 238. *Xabea latipennis* n. sp.

*Holotype*: Malaya: Perak, Larut Hills, 3,700 ft. (H. M. Pendlebury, 14.XI.1932), ♂ (Selangor Museum).

♂: *Colour* yellowish; slender with very broad elytra. *Head* narrowing posteriorly; vertex flattened; frontal rostrum as wide as first antennal joint. Face long, yellow, darkened towards the mouth-parts. Antennae and palpi yellowish;

maxillary palpi slender, with 4th joint shorter than 3rd, 5th long and slender. *Pronotum* strongly narrowing in front, with almost straight anterior margin; disk presenting two rounded tubercles near the anterior margin and a wide raised surface, limited by deep furrows, occupying almost the whole metazone. *Abdomen* yellowish; 10th tergite with posterior margin feebly notched in the middle, forming two small, rounded lobes; subgenital plate large, with nearly straight posterior margin. *Cerci* short and thick, straight. *Legs* very slender. Anterior tibiae a little dilated at base, with internal tympanum very large, external one a little smaller. Posterior tibiae long and slender, without spines; posterior metatarsi very long, 3rd joint of the tarsi short; apical claws presenting a long internal tooth. *Elytra* very wide; mirror wide, divided by a straight median vein, with antero-internal margin very long and straight; diagonal vein long and straight; first chord almost straight, 2nd one strongly sinuated and united to the 3rd by a small transverse veinlet; lateral field widely wrapping round and partly covering the body; *Sc.* curved, bearing 7 branches; radial vein strongly curved at base, moving away from the median which it joins again near the apex. Wings caudate.

*Length* of body 10.5 mm.; length with wings 16.5 mm.; post. fem. 6 mm.; elytra 9.5 mm.

Remarkable for the width of the elytra and the venation of the lateral field.

### 239. *Xabea zonata* n. sp.

*Holotype*: Malaya: Selangor, Kuala Lumpur near Lake Garden (H. M. Pendlebury, 14.IX.1934), ♀ (Selangor Museum).

♀: Elongate. *Colour* testaceous with regular brown bands on the elytra. *Head* very long, brown; occiput shining; vertex sloping, finely ridged with the median line smooth. Antennae and palpi yellowish. *Pronotum* elongate, its surface presenting very small tubercles giving a silky aspect; anterior margin straight, posterior margin slightly sinuated; disk raised in the middle, presenting on each side a curved impression; there is a line of deep points near the posterior margin; colouration yellowish-brown with four small brown lines near the anterior margin and another one near each anterior angle; lateral lobes with inferior margin very strongly sinuated, finely denticulated in the anterior half, with

posterior angle presenting a few deep points. *Abdomen* yellowish-brown; 10th tergite with median part a little lifted, limited by two small oblique ridges; epiproct small, triangular with rounded top. Cerci very short, thick, abruptly narrowing towards the apex, provided on the internal margin with a fine, abundant pubescence. *Legs* yellowish. Anterior tibiae rather strongly dilated, perforated with two large, oval tympana. Posterior tibiae without spines. *Elytra* long and narrow; their surface presenting a silky appearance due to the presence of very small tubercles covering the surface of the areolae between the veins; dorsal field yellowish with 7 very regular, oblique, brown lines along the principal veins; transverse veinlets forming a strong, close, irregular reticulation; lateral field brown with feebly marked, lighter veins which are partly confounded in the reticulation; this is rather wide in the superior part, very close towards the inferior margin. Wings longer than the elytra, darkened towards the anterior margin and at apex, presenting yellow, thickened veinlets. *Ovipositor* short, straight, moderately thick; with apical valves very small, narrower than the stem, bearing three teeth.

*Length* of body 11.5 mm.; length with wings 17.5 mm.; pronot. 3.2 mm.; post. fem. 5.5 mm.; elytra 10.5 mm.; ovipositor 5 mm.

This species is remarkable for its colouration and the elytral venation; it further presents a very special aspect owing to the presence of numerous small tubercles.

## 11. Family TRIGONIDIIDAE

This family includes numerous small species of Gryllids which are not unlike the *Nemobiinae* but in which the second joint of the tarsi is somewhat flattened. The head is rather large, with a short, wide frontal rostrum; antennae very long and slender. Legs long; posterior tibiae non-serrulated, armed with 3 spines on each margin and 5 apical spurs, 3 external, 2 long internal ones. Elytra of the males sometimes similar to those of the females; but, when the mirror is present, it is very large, undivided; one oblique vein only. In the female, the ovipositor is compressed, arched, with long, acute apical valves, which are scarcely wider than the stem.

Most of the *Trigonidiidae* live in damp places, amongst rushes into the stems of which the females insert their eggs.

*Key to the genera of TRIGONIDIIDAE*

- |   |   |                                      |
|---|---|--------------------------------------|
| 1 | Elytra glabrous or almost glabrous.   | 2                                    |
|   | Elytra covered with an abundant fine pubescence. . . . .  | 8                                    |
| 2 | Elytral venation quite different in both sexes, showing always in the male a very neat anal field and mirror.   | 3                                    |
|   | Elytral venation similar or almost similar in both sexes. . . . .   | 5                                    |
| 3 | Pronotum narrowing and rounded in front; elytra presenting in the female false veins between the principal veins. . . . .   | <i>Homoeoxipha</i> Sauss., p. 275    |
|   | Pronotum with anterior margin slightly convex, but neither rounded nor strongly narrowing; no false veins between the principal ones in the female. . . . .                         | 4                                    |
| 4 | Elytra of the male membranaceous, those of the female corneous and strongly convex. . . . .   | <i>Paratrigonidium</i> Brun., p. 284 |
|   | Elytra membranaceous in both sexes, those of the female feebly convex. . . . .  | <i>Anaxipha</i> Sauss., p. 277       |
| 5 | Elytra presenting false veins between the principal veins which make them appear finely striated. . . . .   | <i>Trigonidium</i> Ramb., p. 303     |
|   | Elytra without false veins between the principal veins. . . . .   | 6                                    |
| 6 | Elytral venation quite similar in both sexes. . . . .   | 7                                    |
|   | Elytral venation differing somewhat in the two sexes. . . . .   | <i>Trigonidomorpha</i> Chop., p. 288 |
| 7 | Elytral veins quite straight and parallel, somewhat projecting; transverse veinlets very scarce. . . . .  | <i>Rhcnogryllus</i> <sup>1</sup>     |
|   | Elytral veins oblique and more or less diverging, feebly projecting; transverse veinlets rather numerous. . . . .   | <i>Metioche</i> Stål, p. 295         |
| 8 | Elytra of the male with a distinct mirror. . . . .  | <i>Cyrtoxiphoides</i> Chop., p. 287  |
|   | Elytra of male without perfect mirror. . . . .  | 9                                    |
| 9 | Elytral veins longitudinal, parallel; 5th joint of maxillary palpi very short; vertex flattened; eyes horizontally lengthened. . . . .  | <i>Metiochodes</i> Chop., p. 299     |
|   | Elytral veins more or less oblique and usually more or less anastomosed, chiefly in the male; 5th joint of maxillary palpi long; vertex convex; eyes vertically lengthened. . . . . | <i>Amusurgus</i> Brun., p. 289       |

<sup>1</sup> This genus is not represented in the Indian fauna.

Genus HOMOEOXIPHA Saussure

1874. *Homoeoxipha* Saussure, *Miss. Mexique, Orth.*, 363.

1878. *Homoeoxiphus* Saussure, *Mém. Soc. Genève*, 25, 467.

*Type*.—*Phyllopalpus lycoides* Walker.

*Range*.—Tropical Africa, Ceylon, South India, Burma, Malaya, Malay Archipelago, New Guinea, North Australia.

Very small species; head wide with protruding, rounded eyes; pronotum narrowing in front with convex anterior margin; legs rather long, anterior tibiae with two oval tympana which tend to disappear in the brachypterous forms; 2nd joint of the tarsi flattened, cordiform; elytra long and rather narrow, presenting in the male a perfect mirror; wings caudate or not.

240. *Homoeoxipha lycoides* (Walker)

(Fig. 178)

1869. *Phyllopalpus lycoides* Walker, *Cat. Derm. Salt. Br. M.*, 1, 71.

1878. *Cyrtoxiphus ritsemæ* Saussure, *Mém. Soc. Genève*, 25, 485 (macropterous ♂). Brunner, 1893, *Ann. Mus. Genova*, 38, 211, pl. 6, fig. 77.

1878. *Homoeoxiphus histrio* Saussure, *Mém. Soc. Genève*, 25, 467. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 804.

1925. *Homoeoxipha lycoides* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 532. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 137. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 292. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 56 (micropterous ♀). Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 554.

*Size* small, slender. *Head* blackish or dark rufous-brown, elongate, narrow towards the neck. *Palpi* black; last joint of the maxillary palpi longer than the preceding, triangular. *Antennae* yellowish with three first joints black. *Pronotum* rufous, narrowing in front. *Abdomen* black; cerci yellow. *Legs*: Anterior and median femora yellowish or brownish; tibiae blackish. Posterior femora long and slender, testaceous, with apex more or less darkened; posterior tibiae and tarsi blackish. *Elytra* long and narrow; wings usually much longer than the elytra but sometimes short.

♂: *Elytra* whitish, partly transparent, with four large blackish spots, one near the anal knot, one towards the external margin, another on the anterior part of the mirror, and the last one, darker, at apex; mirror very large, almost one and a half times as long as wide; diagonal vein short,

sinuated; lateral field transparent, with 3 veins. Wings whitish with anterior field blackish. *Genitalia* feebly notched at apex, with very short rounded lobes.

♀: Elytra narrow, with parallel margins, blackish with basal third rufous; veins very close, parallel, 8 in number, of which 5 principal ones, and 3 false ones. *Ovipositor* with apical valves occupying half the total length.

*Length* of body 5–5.3 mm.; length with wings 10–10.5 mm.; post. fem. 4 mm.; elytra 3.5–4.2 mm.; ovipositor 4 mm.

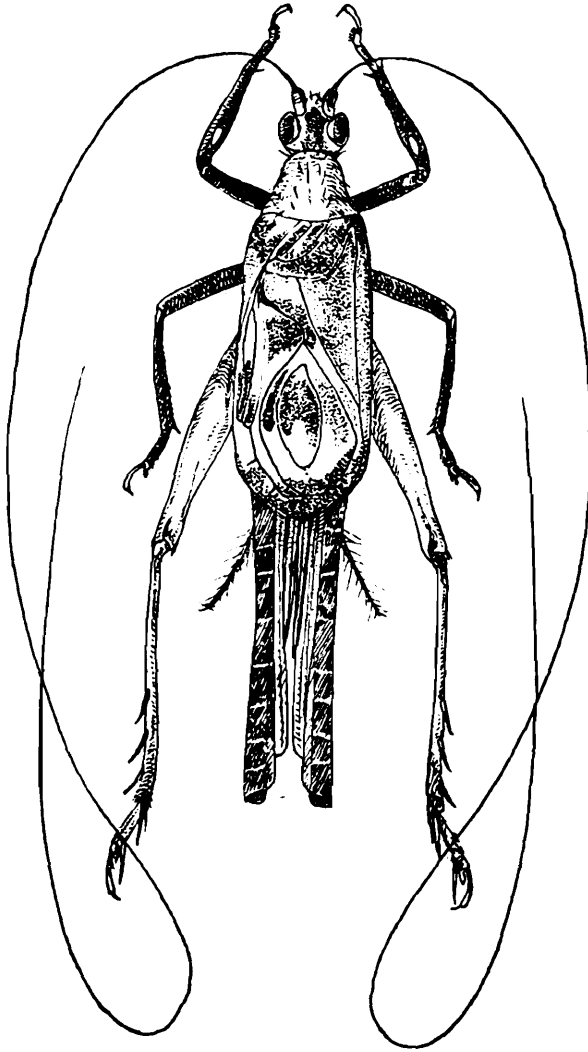


FIG. 178. *Homoeoxipha lycoides* (Walk.), ♂ ( $\times 3.5$ ).

*Range*.—INDIA: Bihar: Monghyr. Assam: Gauhati (B.M.); Chabua (U.S.N.M.). Madras: Kodaikanal (P.M.); Nilgiris; Kharkur (B.M.). Mysore: Valparai (P.M.). EAST PAKISTAN: Kushtea (P.M.). CEYLON (type, B.M.): numerous localities (Sandrasagara, Col. M.). BURMA: Bhamo (Go. M.); Mushmi Hills; Dingliang; Nam Tamai Valley, 4,000 ft. (B.M.). MALAYA: Selangor: Kuala Lumpur; Pahang; Lubak Tahang;

Sungai Tamang. Perak: Talping (Sel. M.). SINGAPORE (B.M.).

This pretty little species is very common and widely distributed throughout all the Indo-Australian region.

### Genus ANAXIPHA Saussure

1874. *Anaxipha* Saussure, *Miss. Mexique, Orth.*, 370.

1878. *Anaxiphus* Saussure, *Mém. Soc. Genève*, 25, 475.

*Type*.—*Anaxipha exigua* Say.

*Range*.—Cosmotropical.

Size small; body rather long and slender. Head wider than the pronotum; eyes vertically lengthened. Fifth joint of maxillary palpi long, triangular. Anterior tibiae perforated on one or both sides. Elytra membranaceous, extending to the apex of abdomen; presenting a large mirror in the male; parallel, rather distant veins in the female. Wings usually caudate but sometimes short.

#### *Key to the species of ANAXIPHA*

- |   |   |                                    |
|---|---|------------------------------------|
| 1 | Posterior femora with two brown bands. . . . .  | 2                                  |
|   | Posterior femora without brown bands..  | 4                                  |
| 2 | General shape rather narrow; colouration uniformly rather dark testaceous..   | <i>longealata</i> Chop., p. 281    |
|   | General shape wide; colouration varied with dark brown. . . . .   | 3                                  |
| 3 | Posterior femora with two longitudinal brown bands; pronotum testaceous with blackish markings.   | <i>venustula</i> (Sauss.), p. 282  |
|   | Posterior femora with a transverse and a longitudinal brown band; pronotum wholly black. . . . .  | <i>nigrithorax</i> Chop., p. 283   |
| 4 | Colouration yellow; general shape narrow. . . . .   | 5                                  |
|   | Colouration rather dark testaceous; general shape wider. . . . .  | <i>henryi</i> Chop., p. 280        |
| 5 | Head and pronotum with rufous lines and spots; a row of rufous points, bearing long bristles, along the posterior margin of the pronotum. | <i>rufonotata</i> Chop., p. 279    |
|   | Colouration of head and pronotum uniformly yellow, without rufous spots. . . . .  | 6                                  |
| 6 | Median and posterior femora presenting small reddish spots; mirror of the male rather wide, wings a little darkened. . . . .              | <i>maculipes</i> Chop., p. 278     |
|   | Legs without reddish spots; mirror of the male narrower; colouration uniformly of a pale yellow.  | <i>longipennis</i> (Serv.), p. 278 |



### 241. *Anaxipha longipennis* (Serville)

1839. *Trigonidium longipenne* Serville, *Ins. Orth.*, 351.  
 1878. *Cyrtoxiphus longipennis* Saussure, *Mém. Soc. Genève*, **25**, 484, pl. 17 (XLIX), figs. 1-6.  
 1878. *Cyrtoxiphus pusillus* Saussure, *Mém. Soc. Genève*, **25**, 486 (micropterous ♀).  
 1893. *Cyrtoxiphus straminulus* Brunner, *Ann. Mus. Genova*, **13**, 211.  
 1924. *Anaxipha longipennis* Chopard, *Rec. Ind. Mus.*, **26**, 188.  
 Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) **15**, 530. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 137. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 57. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 554.

*Size* small, slender. *Colouration* uniformly pale yellowish. *Head* yellow, convex above; last joint of maxillary palpi rather elongated, triangular. *Eyes* moderately protruding. *Legs* yellow; anterior tibiae perforated on each side with an oval tympanum. *Elytra* extending to the apex of abdomen, very pale yellow, almost transparent. Wings usually very long; the micropterous condition seems very scarce.

♂: *Elytral mirror* one and a half times as long as wide. *Genitalia* forming a rather wide and short forceps (fig. 180).

♀: *Elytra* narrow, with 5 straight veins in the dorsal field. *Ovipositor* rather short, regularly curved, with apical valves occupying half the total length, their superior margin very finely denticulated.

*Length* of body 5 mm.; length with wings 9.5 mm.; post. fem. 4.5 mm.; elytra 4 mm.; ovipositor 1.5-1.8 mm.

*Range*.—INDIA: West Bengal: Calcutta (P.M.); Diamond Harbour (B.M.). Assam: Ledo (Phil. M.). Orissa: Barkuda Island (I.M.). Madras: Coimbatore (Phil. M.). Mysore: Shimoga (P.M.). CEYLON: type of *pusillus*; numerous localities (Sandrasagara, Col. M.). BURMA: Shingbuiyang; Myitkyina (Phil. M.). MALAYA: Kuala Lumpur (Sel. M., P.M.).

Described from Mauritius (type, Paris Museum); common and widely spread from East Africa and Madagascar to Queensland.

### 242. *Anaxipha maculipes* Chopard

1929. *Anaxipha maculipes* Chopard, *Bull. Raffles Mus.*, No. 2, 109.

Elongated. *Colour* pale yellow with a few reddish-brown spots on the legs. *Head* short; vertex sloping; eyes rounded.

Palpi yellow; 4th joint of the maxillary ones a little shorter than the 3rd, 5th nearly equal to 4th, triangularly widened. Antennae yellow. *Pronotum* smooth, pale yellow, very slightly narrowing in front; anterior margin straight, posterior one a little sinuated; lateral lobes yellow. *Abdomen* and cerci yellow. *Legs* rather long, yellow, pubescent; anterior tibiae perforated on each side; median femora adorned with a small reddish spot near the apex of the external face; posterior femora with a small spot of the same colour towards the middle and another one near the apex.

♂: *Elytra* wide, yellow with a slight brown tinge before and behind the mirror; this is large and wide, diagonal vein rather short, sinuated; lateral field nearly transparent except along the veins which are opaque, whitish; 3 complete and one incomplete veins. Wings caudate, a little darkened. *Subgenital plate* notched at apex, with a small tubercle in the bottom of the notch.

♀: Dorsal field of *elytra* presenting 4 nearly parallel, rather elevated veins, united at apex; transverse veinlets elevated, forming rectangular areolae; lateral field as in male. Wings caudate. *Ovipositor* with apical valves occupying half the total length, rather strongly crenulated.

*Length* of body 7 mm.; length with wings 10.5 mm.; post. fem. 5.5 mm.; ovipositor 3 mm.

*Range*.—MALAYA: Singapore (P.M.). MENTAWAI ISLANDS: Sipora (type, B.M.).

### 243. *Anaxipha rufonotata* Chopard

(Fig. 181)

1931. *Anaxipha rufonotata* Chopard, *Ark. Zool.*, (A) 23, No. 9, 12. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 137.

Close to the preceding. *Colour* pale yellow with four longitudinal, reddish lines on the *head*; posterior margin of the *pronotum* presenting a row of reddish points, each bearing a long bristle. In the male, the *elytra* are rather wide and the *pronotum* somewhat widening posteriorly; mirror large, a little longer than wide. *Elytra* of the female with 5 regular veins in the dorsal field; in both sexes the lateral field presents a short, incomplete vein between the 2nd and the 3rd ones. Wings very long. *Genitalia* of the same type as *longipennis*, with longer branches of the forceps (fig. 181).

*Length* of body 6 mm.; length with wings 10.5 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur. Perak: Batang Padang; Jor Camp (Sel. M.). SUMATRA (type, P.M.).

## 244. *Anaxipha henryi* Chopard

(Fig. 182)

1936. *Anaxipha henryi* Chopard, *Ceyl. J. Sc.*, (B) 20, 57. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 555.

*Size* small. *Colour* rather dark testaceous-yellow, with a few brownish markings. *Head* a little wider than the pronotum in front, convex above, with feebly marked brown bands; frontal rostrum a little narrower than the first antennal joint; face yellow, with a few reddish-brown spots and a narrow line of the same colour along the internal margin of the antennal sockets. Antennae and palpi yellow; 5th joint of the maxillary palpi a little longer than the 4th, triangular. Eyes rounded, protruding. *Pronotum* very faintly narrowing in front, with anterior margin feebly convex, posterior margin straight; disk convex, testaceous with undefined rufous marks and a fine yellow median line; small brown spots, each bearing a long bristle, are scattered, chiefly along the anterior and posterior margins; lateral lobes concolorous, with feebly sinuated inferior margin, anterior angle rounded. *Abdomen* yellowish. *Legs* relatively short, yellowish, pubescent. Anterior tibiae perforated on both sides. Posterior femora thick, presenting two small brown, genicular spots; tibiae with rather short, yellow spines.

♂: *Elytra* testaceous, wide, extending to the apex of abdomen; mirror nearly as wide as long; lateral field almost transparent, presenting four veins, one of which is very short. Wings very short (a macropterous condition probably exists). *Genitalia* large, projecting in the shape of a forceps (fig. 182).

♀: *Elytra* extending to the apex of abdomen, feebly convex; dorsal field light brown, presenting five yellow, very regular, parallel, projecting veins; transverse veinlets scarcely visible; lateral field as in the male. Wings completely aborted. *Ovipositor* short and wide, feebly curved, with apical valves occupying half the total length, finely denticulated.

*Length* of body 5.5 mm.; post. fem. 4 mm.; elytra 4 mm.; ovipositor 2 mm.

Close to *longipennis*, but with wider general shape, shorter legs and darker colouration.

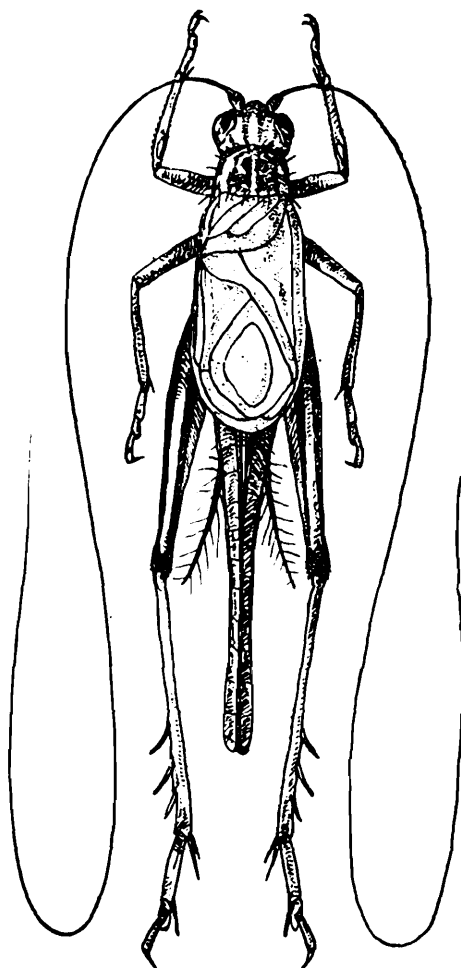
*Range*.—CEYLON: Wellawaya (type, Col. M.); Bandara-wala; Tirukoval; Arugam Bay (Sandrasagara).

**245. *Anaxipha longealata* Chopard**

(Figs. 179, 183)

1930. *Anaxipha longealata* Chopard, *Sarawak Mus. J.*, 4, No. 12, 27, fig. 45.1931. *Anaxipha pendleburyi* Chopard, *Bull. Raffles Mus.*, No. 6, 137.

*Size small. Colour* rather dark smoky-testaceous. *Head* presenting four longitudinal brown bands; face yellowish with 3 longitudinal brown bands. Antennae yellowish with two first joints brown. Palpi brownish, with fifth joint triangular.

FIG. 179. *Anaxipha longealata* Chop., ♂ ( $\times 3.55$ ).

Eyes rounded, laterally projecting. *Pronotum* transverse, slightly narrowing in front; disk feebly convex, brownish with median line, two lateral bands and posterior margin lighter; lateral lobes light brown with inferior margin slightly notched, anterior angle rounded. *Abdomen* yellowish brown. *Legs* of

the same colour as the body, the posterior femora presenting two longitudinal brown bands on their external face.

♂: *Elytra* smoky; mirror very large, occupying more than half the length of the elytron; diagonal vein short and strongly sinuated; lateral field with three nearly parallel veins. Wings very long, brownish. *Genitalia* merely notched at apex (fig. 183).

♀: *Elytra* light brown with a yellowish humeral band; dorsal field with four longitudinal, parallel veins, between which there are rather projecting false veins; transverse veinlets very scarce; lateral field as in the male. Wings caudate. *Ovipositor* short, wide, with apical valves occupying nearly half the total length, their apical part minutely denticulated.

*Length* of body 4.5–5 mm.; length with wings 8.5–9 mm.; elytra 2.5 mm.; ovipositor 1.5 mm.

This small species is remarkable by its very long wings, by the presence of distinct false veins between the elytral principal veins in the female and by the dark bands of the posterior femora.

*Range*.—UPPER BURMA: Nam Tamai Valley (B.M.). MENTAWAI ISLANDS. MALAYA: Selangor: Kuala Lumpur (type of *pendleburyi*). Perak: Batang Padang; Jor Camp. Pahang: Lubak Tahang (Sel. M.). BORNEO. SARAWAK (type of *longealata*).

#### 246. *Anaxipha venustula* (Saussure)

1878. *Cyrtoxiphus venustulus* Saussure, *Mém. Soc. Genève*, 25, 482.

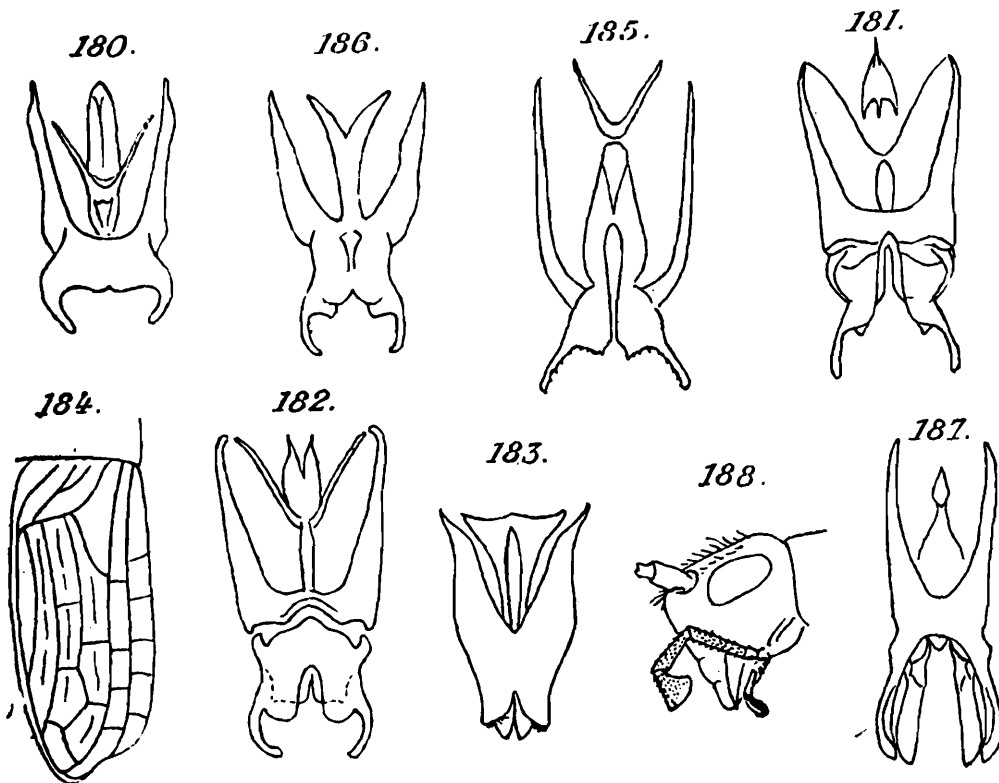
1931. *Anaxipha venustula* Chopard, *Bull. Raffles Mus.*, No. 6, 137.

♂: *Size* rather large for the genus. *Head* rufo-testaceous with a brown band between the eyes; vertex flattened, sloping; frontal rostrum as wide as first antennal joint; face blackish. Antennae and palpi testaceous; last joint of maxillary palpi triangular. *Pronotum* wide, narrowing in front; disk spotted with black, posterior margin darkened. Anterior and median *legs* brownish; anterior tibiae feebly dilated, perforated with two oval tympana. Posterior femora testaceous, adorned with two longitudinal brown bands on the external face; the superior of these bands turns on the superior margin to form an oblique band on the internal face. *Elytra* rather broad, testaceous with several brown spots; at base, a brown band, forming with the posterior band of the pronotum a large spot in the shape of a horse-shoe; a large spot

covers the space between the stridulating vein and the anterior angle of the mirror; the posterior part of the latter presents several small spots or a brown band; several other spots of the same colour are disposed on the edge of the elytron; mirror wide, in the shape of an irregular lozenge, the anterior half being longer than the posterior one. Wings very long.

*Length* of body 8.5 mm.; length with wings 15 mm.; post. fem. 6.5 mm.; elytra 6 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur; Kelantan; Tebing Tinggi (Sel. M.). JAVA (type, Saussure's collection, G.M.).



FIGS. 180 to 188. 180. genitalia of *Anaxipha longipennis*. 181. *id.*, *A. rufonotata*. 182. *id.*, of *A. henryi*. 183. *id.*, of *A. longealata*. 184. right elytron of *Trigonidomorpha fuscifrons*, ♂. 185. genitalia of *Anusurgus oedemeroides*. 186. *id.*, of *A. lateralis*. 187. *id.*, of *A. karnyi*. 188, head of *Metiochodes greeni*.

## 247. *Anaxipha nigrithorax* Chopard

1928. *Anaxipha nigrithorax* Chopard, *Rec. Ind. Mus.*, 30, 29, fig. 46.

♂: *Size* medium. *Colour* testaceous-brown, adorned with blackish brown spots and bands. *Head* wide; vertex short, convex, adorned with a transverse brown band; face blackish,

shining. Palpi long, testaceous; 5th joint of maxillary palpi elongate, triangular, darkened. Antennae yellowish with two first joints black. Eyes large, rounded. *Pronotum* slightly narrowing in front, wholly black, with a whitish pubescence and scattered long, black bristles; lateral lobes rounded anteriorly. *Abdomen* black; subgenital plate narrowing posteriorly. Cerci yellowish. *Legs*: Anterior and median femora black, except at the apex, which is light; tibiae greyish, the anterior perforated on their external face only; tarsi rather long, greyish. Posterior femora stout and rather short, testaceous, adorned with two brown bands, a broad one extending from base a little on the external face and turning back, widening, to the internal margin, and a second one, narrower, along the inferior margin, extending from about the anterior fourth to the apical third. Posterior tibiae greyish, with long spines. *Elytra* smoky, with brown spots at apex, along the internal margin and in the anterior angle of the mirror, which is large and wide; diagonal vein very short, sinuated; chords almost straight; lateral field brown, with 4 veins, the first straight and diverging, 2nd a little sinuate, 3rd very short, incomplete, and 4th strongly sinuated. Wings abortive.

*Length* of body 6.5 mm.; post. fem. 5 mm.

*Range*.—INDIA: Madras: Nilgiri Hills; Eppukadu (type, I.M.).

### Genus PARATRIGONIDIUM Brunner

1893. *Paratrigonidium* Brunner, *Ann. Mus. Genova*, 33, 208.

*Type*.—*Paratrigonidium nitidum* Brunner.

*Range*.—Burma, India, Malay Archipelago, Hawaii, Formosa.

This genus is very close to *Anaxipha* and rather badly defined; the principal character given by Brunner consists of the structure of the elytra which are membranaceous in the males, corneous, convex, with plain, longitudinal veins in the females. The species of this genus are often more vividly coloured than the *Anaxipha*.

#### *Key to the species of PARATRIGONIDIUM*

- |   |  |                            |
|---|--|----------------------------|
| 1 | Posterior femora adorned with a longitudinal brown band. . . . . | 2                          |
|   | Posterior femora uniformly coloured. . . . .                     | 3                          |
| 2 | Anterior and median legs blackish-brown. . . . .                 |                            |
|   |  | <i>unifasciatum</i> Chop., |
|   |  | p. 286                     |

- |   |                                   |   |
|---|-----------------------------------|---|
| Anterior and median legs yellow.  | <i>nitidum</i> Brun., p. 285      |   |
| 3 Legs testaceous.  |                                   | 4 |
| Legs blackish...  | <i>vittatum</i> Brun., p. 286     |   |
| 4 Pronotum black; elytra of the male testaceous with two brown bands.   | <i>castaneum</i> Brun., p. 285    |   |
| Pronotum light testaceous with anterior and posterior margins darkened; elytra of the male almost transparent with a narrow brownish band on the edges and apical margin. | <i>fuscocinctum</i> Chop., p. 287 |   |

## 248. *Paratrigonidium nitidum* Brunner

1893. *Paratrigonidium nitidum* Brunner, *Ann. Mus. civ. St. nat. Genova*, 33, 209, pl. 6, figs. 75a, b.

*Size* small. *Colour* black, shining. *Head* wide, black above with a rufous tint on the lateral margins of the rostrum; vertex flattened, sloping. *Face* black, shining. *Antennae* yellow with first joint black. *Palpi* long, yellowish; 5th joint of maxillary ones long, feebly widening at apex. *Pronotum* black, finely pubescent, with convex anterior margin; lateral lobes black. *Legs* yellowish; posterior femora adorned with a feeble longitudinal brown band.

♂: *Elytra* wide, black, shining; mirror scarcely longer than broad; diagonal vein short, sinuate; lateral field blackish, presenting 3 parallel, straight veins and a 4th incomplete one. *Wings* short or caudate.

♀ (after Brunner): *Elytra* convex, subacute at apex. *Ovipositor* flavous at base, darkened in the middle.

*Length* of body 5.5–6 mm.; pronot. 1.2–1.6 mm.; post. fem. 3.5–4 mm.; elytra 3.5–4 mm.; ovipositor 2 mm.

*Range*.—INDIA: Assam: Ledo (Phil. M.). BURMA: Bhamo (type, Go. M.).

## 249. *Paratrigonidium castaneum* Brunner

1893. *Paratrigonidium castaneum* Brunner, *Ann. Mus. civ. St. nat. Genova*, 33, 209.

Close to the preceding. *Antennae* brownish with two first joints black. *Vertex* chestnut-brown in the male, blackish in the female; *face* black; *palpi* testaceous. *Pronotum* black, opaque. *Legs* uniformly testaceous. *Elytra* of the male testaceous with an irregular median blackish band and another one towards the apex; elytra of the female feebly



convex, chestnut-brown with darker veins; lateral field black. *Ovipositor* ferruginous (after Brunner).

*Length* of body 5.8–6 mm.; pronot. 1.3–1.6 mm.; post. fem. 4.8 mm.; elytra ♂ 5.2 mm., ♀ 3.3 mm.; ovipositor 2 mm.

*Range*.—BURMA: Carin Chebá (type, Go. M.).

## 250. *Paratrigonidium vittatum* Brunner

1893. *Paratrigonidium vittatum* Brunner, *Ann. Mus. civ. St. nat. Genova*, 33, 210, pl. 6, fig. 76.

♀: Antennae light coloured with two first joints blackish; vertex chestnut-brown; palpi yellowish. *Pronotum* black, opaque. *Legs* black with testaceous-brown knees. *Elytra* light testaceous with a longitudinal blackish band on the disk, the apex and the inferior margin of the lateral field of the same blackish colour (after Brunner).

*Length* of body 5 mm.; pronot. 1.5 mm.; post. fem. 4.8 mm.; elytra 3.5 mm.; ovipositor 2 mm.

*Range*.—BURMA: Carin Chebá (type, Go. M.).

## 251. *Paratrigonidium unifasciatum* Chopard

1928. *Paratrigonidium unifasciatum* Chopard, *Rec. Ind. Mus.*, 30, 28, fig. 46.

♂: *Head* brown, with three somewhat indefinite light bands on occiput. Antennae yellow, with two first joints brown. Palpi testaceous; 4th joint of maxillary ones short, 5th large, triangular, lengthened. Eyes rounded. *Pronotum* wide, uniformly blackish-brown, with anterior margin rather convex, posterior straight. *Abdomen* brown. Cerci yellowish. Anterior and median *legs* long; blackish-brown. Posterior legs testaceous; femora presenting a broad, longitudinal brown band. Anterior tibiae perforated on their external face only. *Elytra* with parallel margins, transparent except for three smoky spots, one at base of the anal field, a second on the chords and a third at apex of the elytron; mirror large, almost as wide as long; diagonal vein short, sinuate; lateral field brown, with 3 veins, the superior of which is straight, the other two sinuate. Wings very short.

*Length* of body 5.5 mm.; post. fem. 4.5 mm.; elytra 4 mm.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Soom, alt. 4,000–5,000 ft. (type, I.M.).

**252. *Paratrigonidium fuscocinctum* Chopard**

1925. *Paratrigonidium fuscocinctum* Chopard, *Treubia*, 6, 151, fig. 11.

♂: *Colouration* testaceous-yellow (greenish in life); *elytra* almost transparent, bordered all round with a narrow band of a somewhat reddish-brown tint. *Head* broad; frontal rostrum and middle of the face rufous-brown. Antennae brown with first joint yellow. Maxillary palpi yellow, with 4th joint short, 5th long and widened. *Pronotum* wider than long, feebly narrowing in front, yellowish, shining, with anterior and posterior margins rather widely bordered with reddish-brown; disk furrowed in the middle; lateral lobes rufous-brown. *Legs* yellowish; posterior femora unicolorous, presenting in the apical half of the inferior internal margin 7 long bristles. *Cerci* yellow.

♀: Same *colouration* as the male; *elytra* corneous, smoky with feebly marked, parallel veins. *Ovipositor* very finely denticulated.

*Length* of body 5 mm.; post. fem. 4.8 mm.; *elytra* ♂ 3.8 mm., ♀ 3.5 mm.

*Range*.—MALAYA: Singapore (U.S.N.M.). JAVA (type, P.M.).

**Genus CYRTOXIPHOIDES Chopard**

1951. *Cyrtoxiphoides* Chopard, *Rec. S. A. Mus.*, 9, 473.

*Type*.—*Cyrtoxiphoides leai* Chopard.

*Range*.—Australia, Ceylon, Tropical Africa.

General shape rather short; eyes horizontally lengthened; fifth joint of maxillary palpi very short, funnel-shaped. *Elytra* pubescent, presenting a large mirror in the male. Wings only very slightly longer than the *elytra*.

**253. *Cyrtoxiphoides pubescens* (Chopard)**

1925. *Anaxipha pubescens* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 530, fig. 25. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 56. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 554.

♂: *Colour* testaceous-brown, very pubescent. *Head* a little depressed; vertex slightly sloping, ending in a rostrum as wide as first antennal joint; face rufous. Palpi testaceous; 5th joint of the maxillary palpi short, triangular, 4th joint a little shorter than 3rd. Antennae yellowish. Eyes rather big and protruding, a little lengthened. *Pronotum* rufous,

furnished with an abundant pubescence; anterior and posterior margins almost straight; lateral lobes with inferior margin slightly notched, anterior angle rounded. *Abdomen* testaceous-brown. Cerci long, yellow. *Legs* concolorous; anterior tibiae provided on each side with a large, oval tympanum. Posterior femora rather thick; tibiae armed with three pairs of slender spines. *Elytra* pubescent, light brown with veins yellowish; mirror very large, occupying more than half the elytron, rather narrow; diagonal vein very short, almost straight; lateral field with 3 veins, one of which is straight, the other two slightly sinuated. Wings relatively long.

*Length* of body 6.5 mm.; length with wings 10 mm.; post. fem. 5 mm.; elytra 5.3 mm.

*Range*.—CEYLON: Peradeniya (type, B.M.). SIAM.

### Genus TRIGONIDOMORPHA Chopard

1925. *Trigonidomorpha* Chopard, *Ark. Zool.*, (A) 18, No. 6, 39.

*Type*.—*Trigonidomorpha sjöstedti* Chopard.

*Range*.—Australia, Ceylon, South and Central Africa.

Close to *Anaxipha*, but the elytra of the male without distinct mirror, the anal field, the stridulating vein and the oblique vein being easily recognized.

### 254. *Trigonidomorpha fuscifrons* Chopard

(Fig. 184)

1936. *Trigonidomorpha fuscifrons* Chopard, *Ceyl. J. Sc.*, (B) 20, 54, fig. 12. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 554.

♂: *Size* very small. *Colour* testaceous, a little varied with brown. *Head* convex; occiput adorned with a divided brown band; vertex brown from the middle of the eyes to the apex of the rostrum; face yellow with a brown band beneath each eye and another band of the same colour in the middle, widening on the facial shield between the antennae. Palpi yellowish, the 5th joint of the maxillary palpi a little longer than the 4th, triangular, wide. Antennae yellow, with two first joints brown. *Pronotum* transverse with anterior and posterior margins straight, sides parallel; disk dark testaceous, strongly darkened in front; lateral lobes concolorous, with inferior margin slightly sinuated in the middle, angles rounded. *Abdomen* testaceous; subgenital plate large with a small

projection in the middle of the posterior margin. *Legs* of the same colour as the body, rather long and strong, pubescent. Anterior tibiae unperforated but feebly depressed on internal face. Posterior femora rather short and thick. *Elytra* (fig. 184) yellowish-brown, nearly transparent with weak, lighter veins; venation comprising the stridulating vein, one oblique short vein, and four longitudinal veins which are a little irregular, the two first ones representing the chords which are united about the apical third. The venation of the left elytron, partly covered by the right one, is faint and very irregular.

*Length* of body 4 mm.; post. fem. 3.5 mm.

*Range*.—CEYLON: Bandarawela (type, Col. M.).

### Genus AMUSURGUS Brunner

1893. *Amusurgus* Brunner, *Ann. Mus. nat. Genova*, 33, 212.

1925. *Paranaxipha* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 530.

*Type*.—*Amusurgus fulvus* Brunner.

*Range*.—Burma, India, Ceylon, Malaya, Malay Archipelago, New Guinea, North Australia.

Very close to the preceding, but the elytra covered with a fine pubescence; in the male, the stridulating vein and the anal field of the elytra are not defined; the veins of the dorsal field are more or less anastomosed, sometimes forming cells, one of which may be considered as a rudimentary mirror in certain species.

### Key to the species of AMUSURGUS

- |   |   |                                  |
|---|---|----------------------------------|
| 1 | Colouration testaceous varied with dark brown; legs adorned with brown rings and spots; elytral venation of the male presenting rather well-defined oblique and diagonal veins. | <i>ornatipes</i> (Chop.), p. 294 |
|   | Colouration uniformly testaceous or yellowish; elytral venation of the male more confused. . . . .  | 2                                |
| 2 | Colouration yellowish; elytra of male with a long, narrow cell, representing the mirror. . . . .  | <i>speculifer</i> Chop., p. 293  |
|   | General colouration testaceous or light brown; elytra of male presenting no trace of a distinct mirror. . . . .   | 3                                |
| 3 | Face yellowish, more or less mottled with light brown; lateral lobes of the pronotum and lateral field of the elytra without very distinct dark brown band. . . . .             | 4                                |

- Face presenting two very distinct colourations, the superior part dark brown, the inferior part yellow; there is a very distinct lateral brown band on the pronotum and elytra. . . . . *lateralis* n. sp., p. 291
- 4 Veins of the male elytra forming large cells. . . . . *oedemeroides* (Walk.), p. 290
- Venation almost similar in both sexes; veins of the male divided, without formation of distinct cells. . . . . 5
- 5 General colouration light brown; elytra presenting a short and rather scarce pubescence; ovipositor of the female long. . . . . *unicolor* (Chop.), p. 291
- Head and pronotum dark brown, legs yellowish; elytra presenting a rather long and abundant pubescence; ovipositor of the female shorter. . . . . *karnyi* (Chop.), p. 292

## 255. *Amusurgus oedemeroides* (Walker)

(Fig. 185)

1871. *Eneoptera oedemeroides* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 11.
1893. *Amusurgus fulvus* Brunner, *Ann. Mus. Genova*, 33, 212, pl. 6, fig. 78.
1925. *Amusurgus oedemeroides* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 527, fig. 23. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 52. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 533.

*Colouration* rather uniformly pale testaceous. *Head* a little flattened above, pubescent with a few long bristles; frontal rostrum somewhat darkened; face yellowish, feebly mottled with brown. *Eyes* rounded, protruding. *Antennae* and *palpi* yellowish; 5th joint of maxillary palpi longer than 4th, triangular. *Pronotum* transverse, narrowing a little in front; disk feebly darkened on the sides, covered with a rather abundant pubescence and presenting along the posterior margin small tubercles each bearing a bristle; lateral lobes of the same colour as the disk, a little lighter in their inferior part. *Abdomen* light testaceous. *Legs* of the same colour as the body; anterior and median femora presenting a very feeble brown ring near the apex; anterior tibiae slightly dilated at base, perforated on each side. *Elytra* extending to the apex of abdomen, finely pubescent. *Wings* much longer than the elytra, with anterior field pubescent.

♂: Veins of the dorsal field of elytra divided and anastomosed without forming a distinct mirror but a few large cells towards the apical half. *Genitalia* presenting two long lateral

processes, with very finely denticulated internal margin (fig. 185).

♀: Veins of the dorsal field of elytra regularly longitudinal; transverse veinlets rather numerous and regularly disposed. *Ovipositor* rather long and slender, feebly curved; apical valves occupying half the total length of the same width as the stem, the superior ones presenting 7 rather strong teeth; inferior ones with 5 feebly acute teeth near the apex.

*Length* of body 6–7 mm.; length with wings 10 mm.; post. fem. 5.5 mm.; elytra 5–5.5 mm.; ovipositor 2.5 mm.

*Range*.—INDIA: Madras: Madura (P.M.); Salem Dist.; Shevaroy Hills (Phil. M.). CEYLON (type, B.M.): numerous localities (Col. M.). BURMA: Palon Pegu (type of *fulvus*, Go. M.); Toungoo; Myitkyina (Phil. M.).

### 256. *Amusurgus lateralis* n. sp.

(Fig. 186)

*Holotype*: Ceylon: Kanniyai, ♂ (Paris Museum).

Very close to the preceding, presenting the same general shape, size and colouration. *Head* a little rufous above. Face presenting two very distinct parts: the superior, from the top of the vertex to the inferior margin of the eyes, dark brown, shining; the inferior part yellow, the two colours very neatly separated; cheeks yellow with a dark band behind the eyes. *Pronotum* with a feeble reddish tint above; lateral lobes with superior part dark brown, inferior part yellow. *Legs* yellowish. *Elytra* with a dark lateral band continuing, the band of the same colour running on the head behind the eyes, and on the lateral lobes of the pronotum. *Genitalia* of the same type as *oedemeroides* but with apical processes somewhat curved inside (fig. 186).

*Length* of body 7 mm.; length with wings 10 mm.; elytra 5 mm.

*Range*.—INDIA: West Bengal: Calcutta (P.M.). Mysore: Valparai (P.M.). CEYLON: Kanniyai; Yatiyantota (P.M.). MALAYA: The Gap (B.M.). SUMATRA.

### 257. *Amusurgus unicolor* (Chopard)

1925. *Metioche unicolor* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 526, fig. 22. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 292. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 49. Chopard and Chatterjee, 1937, *Ind. Forest Rec.*, 3, 27. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 552.

*Shape* rather narrow and long. *Colour* testaceous-brown, rather feebly pubescent. Vertex of *head* sloping, light brown,

with a very inconspicuous light median line; face rufo-testaceous. Palpi light brown, a little darkened on their external face; 4th joint of the maxillary palpi a little shorter than 3rd, 5th rather short, triangular, funnel-shaped at apex. Antennae yellowish, with two first joints concolorous. Eyes large, rounded. *Pronotum* slightly narrowing anteriorly, with anterior margin a little convex, posterior one sinuated; disk light brownish, a little lighter along the anterior and posterior margins, with a few setigerous spots near the latter; lateral lobes concolorous, with anterior angle rounded. *Abdomen* testaceous-brown. *Legs* concolorous; anterior and median femora presenting only a very feebly marked brown ring near the apex; anterior tibiae provided with a large oval tympanum on both sides.

♂: *Elytra* light brown, a little pubescent; dorsal field presenting four slightly oblique veins; transverse veinlets forming a somewhat irregular wide reticulation; lateral field with 4 parallel veins, the second of which is very short.

♀: *Elytra* very similar to those of the male. *Ovipositor* rather long, with apical valves forming not quite half the total length.

*Length* of body 6.5 mm.; length with wings 10.5 mm.; post. fem. 5 mm.; elytra 5 mm.; ovipositor 2.9 mm.

*Range*.—INDIA: Madras: Nilgiris; Gudalur (B.M.); Shevaroy Hills; Yerkaud (B.M.). Mysore: Coorg. Uttar Pradesh: Fraserpet (Dehra Dun). CEYLON: Peradeniya (type, B.M.); Colombo (Col. M.). SUMATRA.

## 258. *Amusurgus karnyi* (Chopard)

(Fig. 187)

1930. *Metioche karnyi* Chopard, *Sarawak Mus. J.*, 4, 26, figs. 42, 43. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 136.

♂: *Colour* rather dark brownish, a little varied with testaceous; very pubescent. *Head* rather big, rounded; vertex a little flattened, adorned with feebly marked brown spots. Eyes large, rounded. Palpi light brown; 4th joint of maxillary palpi shorter than 3rd and 5th, the latter triangular. Antennae yellowish, ringed with brown. *Pronotum* slightly narrowing in front; disk convex, brownish with long, black bristles; lateral lobes presenting a dark longitudinal band, their anterior angle rounded. *Abdomen* yellowish-brown. *Legs* rather long, testaceous, the femora presenting an undefined brown ring before the apex. Anterior tibiae rather

strongly swollen at base, perforated on the internal face with a large oval tympanum, external face merely depressed.

♂: *Elytra* brownish with lighter veins, very pubescent; veins of the dorsal field a little irregular, 4 in number, the third and the fourth united at base, the cubital furcate near the apex; transverse veinlets rather scarce and irregular; lateral field dark brown, with three irregular, parallel veins. Wings caudate. *Genitalia* rather narrow, in the shape of a forceps, with straight inferior parts (fig. 187).

♀: *Elytra* similar to the male; venation nearly the same, the veins only a little more distant, the transverse veinlets more scarce. *Ovipositor* short, feebly curved, with apical valves wide, occupying half the total length. Wings caudate.

*Length* of body 6–6.5 mm.; length with wings ♂ 9 mm., ♀ 11 mm.; *ovipositor* 2.5 mm.

Close to the preceding species, but with less uniform colouration, not so regular elytral venation, and more abundant pubescence.

*Range*.—MALAYA: Selangor: Kuala Lumpur. Perak: Batang Padang (Sel. M.). SUMATRA (type, P.M.). SARAWAK. PENINSULAR SIAM. JAVA.

## 259. *Amusurgus speculifer* Chopard

1936. *Amusurgus speculifer* Chopard, *Ceyl. J. Sc.*, (B) 20, 52, fig. 11. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 553.

*Size* small. *Colour* yellowish, pubescent. *Head*: Forehead a little flattened; frontal rostrum a little narrower than the first antennal joint; face yellow, triangular. Palpi and antennae yellow; 5th joint of maxillary palpi longer than 4th, triangular. Eyes rather big, feebly lengthened dorso-ventrally. *Pronotum* a little narrowing in front; disk convex, testaceous-yellow, with a fine pubescence and a few long, rufous bristles; lateral lobes concolorous, rounded forwards. *Abdomen* yellow. *Legs* yellowish, rather long, pubescent. Anterior tibiae perforated on both sides. Posterior tibiae with supero-internal apical spur relatively short and thick. *Elytra* yellowish-testaceous, finely pubescent; chords undifferentiated, represented by three feebly oblique, almost equidistant veins; one rather neatly defined oblique vein; diagonal vein emerging as a branch of the first chord and divided to form a long, rather neat mirror; lateral field almost transparent, presenting three complete and one incomplete veins. Wings rather long, pubescent.



*Length* of body 6 mm.; length with wings 9 mm.; post. fem. 4.5 mm.

*Range*.—CEYLON: Labugama (type, Col. M.).

## 260. *Amusurgus ornatipes* (Chopard)

1925. *Paranaxipha ornatipes* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 528, fig. 24. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 553.

*Colour* testaceous, varied with dark brown, rather pubescent. *Head* a little flattened, with round, protruding eyes; face brown, shining. Maxillary palpi testaceous, with 3rd and 4th joints mottled with brown at base, 5th wide, triangular, a little shorter than 4th. Antennae yellowish, with two first joints brown and a few brownish rings. *Pronotum* slightly narrowing forwards, with median line furrowed, posterior margin subangular; disk light brown, with a few small, dark spots along the posterior margin and a narrow yellowish stripe on the shoulders; lateral lobes brown, with anterior angle much rounded. *Abdomen* brownish. *Cerci* yellowish, darkened at base. *Legs* pubescent. Anterior femora dark brown with whitish apex; tibiae and tarsi yellowish, the tibiae with a tympanum on each side. Median femora brown from base to the middle third, presenting before the apex a brown ring; tibiae with two small brown spots. Posterior femora rather long and slender, testaceous, with a brown irregular stripe near the middle and a brown ring towards the apex; tibiae presenting two small brown spots near the base, a ring about the middle and the apex of the same colour; internal spines wholly brown, external ones with apical half darkened; tarsi brown.

♂: *Elytra* brownish, with veins a little lighter; mirror narrow, lengthened; diagonal vein almost straight, long; chords nearly straight, parallel; several veinlets between the chords and between these and the mirror; one oblique vein ending on the mirror; apical field forming large, irregular cells; lateral field brown, with four veins, the first of which is a little sinuated, the other ones straight, parallel. Wings long. *Genitalia* in the shape of a denticulate hornlet with slightly projecting angles.

♀: *Elytra* with dorsal field presenting four regularly distant, almost straight veins, the first one ending on the internal margin, near the apical fourth, the third furcate at about the same place. *Ovipositor* rather short, with apical valves occupying less than half the total length, slightly broader than the stem, their edges finely denticulated.

*Length* of body 7 mm.; length with wings 11.5 mm.; post. fem. 5 mm.; elytra 5 mm.; ovipositor 3 mm.

*Range*.—CEYLON: Kandy (type, B.M.); numerous localities (Sandrasagara).

### Genus METIOCHE Stål

1877. *Metioche* Stål, *Oefv. Vet.-Akad. Forh.*, 34 (1), 46.

1878. *Piestoxiphus* Saussure, *Mém. Soc. Genève*, 25, 467 (part).

1926. *Litogryllus* Hebard, *Bull. Bishop Mus.*, 31, 86.

*Type*.—*Trigonidium vittaticolle* Stål.

*Range*.—Indo-Australian region, Philippine Islands.

Elytra without pubescence or very feebly pubescent; venation very similar in both sexes, the veins feebly oblique and somewhat irregular, some of them more or less divided; transverse veinlets rather numerous.

#### *Key to the species of METIOCHE*

- |   |   |                                     |   |
|---|---|-------------------------------------|---|
| 1 | Head flattened above; general shape relatively short and broad. . . .   | <i>gigas</i> (Bol.), p. 298         |   |
|   | Head convex above; general shape rather long and narrow. . . .  |                                     | 2 |
| 2 | Head rufous above with two brown spots on the occiput; elytra black with yellow veins. . . .  | <i>pallidinervis</i> Chop., p. 297  |   |
|   | Head dark brown or black, more or less varied with testaceous. . . .  |                                     | 3 |
| 3 | Head black with small yellow lines along the eyes; pronotum blackish; legs yellow; elytra and anterior part of the wings very dark brown. . |                                     | 4 |
|   | Head and pronotum dark brown, varied with testaceous; elytra and anterior part of wings usually testaceous. . . .                           | <i>vittaticollis</i> (Stål), p. 297 |   |
| 4 | Wings abortive; anterior tibiae without tympana. . . .  | <i>pallipes</i> Stål, p. 295        |   |
|   | Wings much longer than the elytra; anterior tibiae perforated on both sides.  | <i>bicolor</i> (Stål), p. 297       |   |

### 261. *Metioche pallipes* Stål

(Fig. 189)

1861. *Metioche pallipes* Stål, *Eugenies Resa, Ins.*, 316.

1878. *Homoeoxiphus* (?) *pallipes* Saussure, *Mém. Soc. Genève*, 25, 472.

1925. *Metioche pallipes* Chopard, *Ark. Zool.*, (A) 18, No. 6, 34, fig. 69.

*Size* small. *Colour* blackish-brown, shining, glabrous. *Head* blackish with a small median yellow line and two bands

of the same colour along the eyes, united at apex of the rostrum. Palpi yellowish, with last joint darkened. Antennae yellow. *Pronotum* blackish with the median line, the anterior margin and two spots near the posterior margin yellowish. *Legs* yellowish; posterior tibiae with brown spines. *Elytra* a little longer than the body, light brownish, translucent; veins of the dorsal field rather distant, the internal one

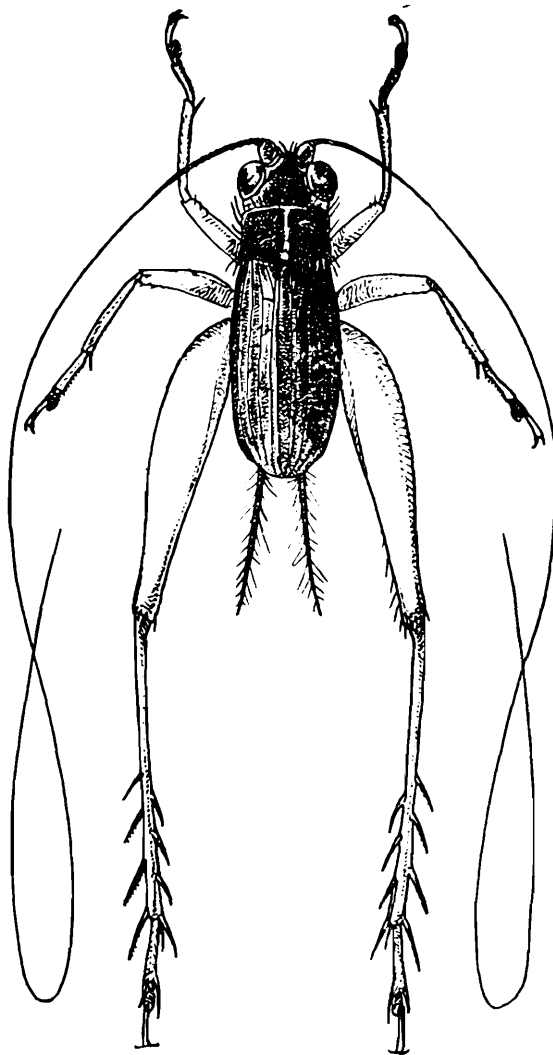


FIG. 189. *Metioche pallipes* Stål, ♂ ( $\times 6.0$ ).

along the suture, the following furcate a little before the apex. Wings very short.

*Length* of body 4.5 mm.; post. fem. 4.3 mm.

*Range*.—MALAYA: Singapore (type, S.M.). Selangor: Kuala Lumpur (Sel. M.). JAVA. NEW GUINEA. SUMATRA. BORNEO.

**262. *Metioche bicolor* (Stål)**

1861. *Trigonidium bicolor* Stål, *Eugenies Resa, Ins.*, 317.

1925. *Metioche bicolor* Chopard, *Ark. Zool.*, (A) 18, No. 6, 33, fig. 75.

*Colour* blackish. *Head* presenting yellowish bands along the eyes as in the preceding species. *Palpi* yellowish; last joint of the maxillary ones long, brownish. *Antennae* yellow with first joint a little darkened. *Legs* yellow; anterior tibiae perforated. *Elytra* dark brown with veins disposed as in *pallipes*. *Wings* much longer than the elytra.

*Length* of body 5.5 mm.; length with wings 10 mm.; post. fem. 4.5 mm.

This species is probably the macropterous condition of the preceding.

*Range*.—MALAYA: Selangor: Kuala Lumpur (Sel. M.). SUMATRA. JAVA (type, S.M.).

**263. *Metioche vittaticollis* (Stål)**

1861. *Trigonidium vittaticolle* Stål, *Eugenies Resa, Ins.*, 317.

1925. *Metioche vittaticollis* Chopard, *Ark. Zool.*, 18 (A), No. 6, 32, figs. 68-70. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 136.

General *size* and shape as the preceding. *Colouration*: *Head* brown with four rufous longitudinal lines above. *Antennae* yellow with two first joints brownish. *Pronotum* with two longitudinal brown bands, separated by a narrow median light line, and two light bands on the shoulders. *Ovipositor* rather short, with apical valves occupying half the total length.

The colouration of this species is rather variable and some specimens are almost as dark as *M. bicolor*; it can be distinguished by the first two joints of the antennae being blackish and by the elytral venation being a little more regular.

*Length* of body 5.5 mm.; length with wings 10 mm.

*Range*.—INDIA: Assam: Ledo (Phil. M.). MALAYA: Selangor: Kuala Lumpur. Perak: Batang Padang (Sel. M.). SIAM. PHILIPPINES: Manila (type in S.M.). N. AUSTRALIA.

**264. *Metioche pallidinervis* Chopard**

1928. *Metioche pallidinervis* Chopard, *Rec. Ind. Mus.*, 30, 28, fig. 15.

♂: Rather large for the genus. *Colouration* blackish with elytral veins light yellow, standing out against the dark background. *Head* rufous, with two brown spots on the occiput; frontal rostrum brown; face rufous-yellow, shining.

Palpi yellowish; 4th joint of maxillary palpi shorter than 3rd, 5th a little longer than 4th, slightly widening at apex. Antennae brownish, with two first joints and a few rings darker. Eyes rather large, rounded. *Pronotum* nearly black, with only the extreme margin of lateral lobes yellowish; anterior margin a little convex, posterior one weakly sinuate. *Abdomen* blackish, except for a small yellow stripe on each side. Cerci black. *Legs* yellow. Anterior tibiae perforated on their internal face only. Posterior tibiae with brown spines. *Elytra* black with yellow veins, except in the covered part of the left elytron, which is wholly black; dorsal field presenting 3 rather regular longitudinal veins and the cubital vein bearing two irregular branches; transverse veinlets rather close, regular between the free veins, irregular between the cubital and its branches; lateral field black, feebly pubescent, with 2 long, straight veins, and 2 short, curved ones. Wings rather long, blackish, iridescent.

*Length* of body 7 mm.; length with wings 10.5 mm.; post. fem. 7 mm.; elytra 6 mm.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Sureil, alt. 5,000 ft. (type, I.M.).

### 265. *Metioche gigas* (Bolivar)

1900. *Trigonidium gigas* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 804.

♀: Rather large for the genus. *Head* broad, flattened above, finely pubescent. *Colouration* yellowish with four badly defined rufous bands on the occiput; frontal rostrum dark; face brown, shining. Eyes horizontally lengthened. Antennae yellow with two first joints brown. Palpi yellowish; 5th joint of the maxillary palpi longer than 4th, triangular. *Pronotum* rufous with yellowish spots; lateral lobes yellowish. *Legs* yellowish with a fine brown pubescence; anterior tibiae moderately dilated at base, without tympana; spines of the posterior tibiae yellow with dark apex. *Elytra* extending to the apex of abdomen, presenting a feeble pubescence; dorsal field light brown, presenting 5 straight, parallel veins; sutural part of the left elytron covered by the right one, with veins weakened; transverse veinlets rather scarce and feeble; lateral field brown in its superior part, almost transparent beneath, possessing four veins; the apex presents a strong curve at the limit with the dorsal field. Wings only very little longer than the elytra. *Ovipositor* slender, feebly curved; apical valves occupying nearly half the total length, scarcely broader than the stem, presenting near the apex short, wide, rounded teeth.

*Length* of body 6.5 mm.; length with wings 7 mm.; pronot. 1.2 mm.; post. fem. 5 mm.; elytra 4.5 mm.; ovipositor 2.5 mm.

This species has the general shape of a *Cyrtoxiphoides* but it seems probable that the unknown male will not present a mirror, the anterior tibiae being unperforated. It differs from the other species of *Metioche* by the shape of the head and by the feebly pubescent elytra; these characters remind one of *Metiochodes* but the maxillary palpi are different from those of the species of this genus.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodai-kanal (type, Pantel's collection, P.M.).

### Genus METIOCHODES Chopard

1931. *Metiochodes* Chopard, *Ark. Zool.*, (A) 23, No. 9, 13.

*Type*.—*Metiochodes flavescens* Chopard.

*Range*.—India, Ceylon, Malaya, Malay Archipelago, N. Australia.

Head with vertex flattened; eyes horizontally lengthened; 5th joint of maxillary palpi very short and wide. Elytral venation similar in both sexes; elytra and anterior part of the wings finely pubescent.

#### *Key to the species of METIOCHODES*

- |   |  |                                  |   |
|---|--|----------------------------------|---|
| 1 | Anterior and median femora blackish; tibiae whitish with dark inferior margin; posterior legs yellow. Elytra brown with whitish veins. . . . . | <i>ornatus</i> n. sp., p. 303    |   |
|   | Legs and elytra uniformly coloured. . . . .  |                                  | 2 |
| 2 | Head and pronotum with three whitish bands. . . . .  | <i>trilineatus</i> Chop., p. 301 |   |
|   | Head and pronotum without whitish bands. . . . .   |                                  | 3 |
| 3 | Pronotum rather strongly narrowing in front; head much wider than its anterior margin; apex of male genitalia acute. . . . .                   | <i>flavescens</i> Chop., p. 299  |   |
|   | Pronotum wide in front; head slightly wider than its anterior margin; apex of male genitalia rounded. . . . .                                  | <i>greeni</i> (Chop.), p. 300    |   |

### 266. *Metiochodes flavescens* Chopard

1931. *Metiochodes flavescens* Chopard, *Ark. Zool.*, (A) 23, No. 9, 13, fig. 1. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 137. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 49, fig. 9b.

*Size* small; general shape long with parallel sides. *Colour* of a fine, rather dark yellow. *Head* flattened above; frontal rostrum feebly projecting, furrowed on each side along

the antennal socket; face very short and wide. Antennae and palpi yellow; 4th joint of the maxillary palpi short, 5th a little longer but still much shorter than 3rd, strongly widened. Eyes big, lengthened. *Pronotum* a little wider than long, very feebly narrowing in front, with almost parallel sides; disk convex, furrowed in the middle; lateral lobes of the same colour as the disk, with much rounded anterior angle. *Abdomen* and cerci yellow. *Legs* yellow. Anterior tibiae perforated on internal face with a rather large, oval tympanum. Posterior femora rather long and narrow; posterior tibiae very pubescent with spines and apical spurs yellow with brown tips. *Elytra* long, narrow, with parallel sides, rather feebly pubescent; veins of the dorsal field very regular, straight, 5 in number, the three first ones united at apex, the 4th a little diverging towards the extremity; transverse veinlets scarce, specially towards the apex; the covered part of the left elytron is completely transparent, very neatly limited by a false vein and covered with projecting areolae; lateral field almost transparent, presenting 5 longitudinal, rather regular veins, the 4th of which is short. Wings much longer than the elytra. *Genitalia* of male in the shape of curved hooks.

*Length* of body 6 mm.; length with wings 10 mm.; post. fem. 4.5 mm.; elytra 5 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur (Sel. M.). Singapore (P.M.). SUMATRA (type, S.M.). PENINSULAR SIAM. BORNEO. N. AUSTRALIA.

## 267. *Metiochodes greeni* (Chopard)

(Fig. 188)

- 1900. *Cyrtoxiphus fulvus* Bolivar (*non* Saussure), *Ann. Soc. ent. Fr.*, 68 (1899), 805.
- 1925. *Cyrtoxipha greeni* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 532, fig. 26.
- 1936. *Metiochodes greeni* Chopard, *Ceyl. J. Sc.*, (B) 20, 49, fig. 9a. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 552.

*Size* small, long. *Colour* yellow. *Head* a little wider than pronotum; vertex flattened; frontal rostrum narrow (fig. 188). Eyes lengthened, slightly protruding. Antennae and palpi yellow; 5th joint of maxillary palpi shorter than 4th, widened and circular at apex. *Pronotum* a little wider than long, with anterior margin slightly concave, posterior one sinuated; lateral lobes with rounded inferior margin. *Abdomen* yellowish. Cerci yellow. *Legs* concolorous; anterior tibiae rather strongly dilated at base and presenting on each side a large,

oval tympanum. *Elytra* yellow, rather pubescent, extending almost to the apex of abdomen, with parallel sides; dorsal field presenting 5 parallel veins, the three internal of which are curled on each other, the 4th furcate a little before the apex; transverse veinlets scarce and feebly visible; left elytron with internal part, covered by the right one, wholly transparent; lateral field presenting two short curved veins and two longitudinal straight ones, almost parallel with the *Sc*. Wings extending very little beyond the elytra. *Ovipositor* with apical valves occupying nearly half the total length, the superior ones presenting two rows of 5 to 6 rather strong denticles near the apex, the inferior ones with a finely denticulated ridge from base to the apical part.

*Length* of body 6.5 mm.; length with wings 10.5 mm.; post. fem. 4.8 mm.; elytra 5.5 mm.; ovipositor 2.5 mm.

*Range*.—INDIA: Madras: Madura (P.M.). Mysore: Shimoga (Phil. M.). CEYLON: Peradeniya (type, B.M.); Arugam Bay; Labugama; Galga; Ratnapura (Sandrasagara).

## 268. *Metiochodes trilineatus* Chopard

1936. *Metiochodes trilineatus* Chopard, *Ceyl. J. Sc.*, (B) 20, 50, fig. 10. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 553.

♀: *Head*: *Colouration* light brownish above, adorned with 3 whitish lines, one in the middle and one behind each eye; two lines of the same colour extend along the antennal sockets and join at apex of the frontal rostrum; face yellow with a small brown transverse band uniting the eyes on the facial shield. Eyes a little lengthened horizontally. Palpi yellowish; 5th joint of the maxillary ones rather short, triangular. Antennae yellow. *Pronotum* feebly narrowing in front, with nearly straight anterior margin, posterior margin a little sinuated; disk light brown, slightly shining, bearing a few long bristles and adorned with three whitish bands in prolongation of those of the head; anterior and posterior margins also narrowly lined with whitish; lateral lobes yellowish with much rounded anterior angle. *Abdomen* and cerci yellowish. *Legs* yellowish with a brown pubescence. Anterior tibiae perforated with a large internal tympanum and a much smaller external one; median tibiae adorned externally with a fine brown longitudinal line. Posterior femora presenting a small brown longitudinal band in the middle of the external face and a small oblique spot near the



apex; tibiae with a small brown line at base of the external face, the spines and the large apical spurs brown on the inner side. *Elytra* long and narrow, pubescent, brown with the veins standing out in yellow; dorsal field presenting 4 almost longitudinal veins, the 1st united to the 2nd by a false vein which terminates on the edge, the 4th furcate near the apex; lateral field lighter than the dorsal field, showing 4 regularly spaced veins. Wings brown, exceeding the elytra by a length equal to about their own length. *Ovipositor* long, very feebly

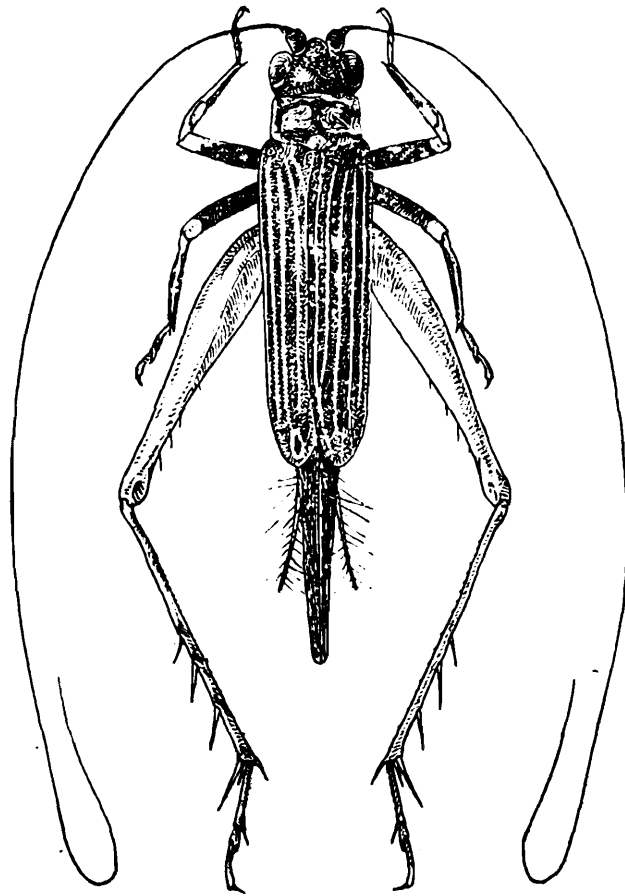


FIG. 190. *Metiochodes ornatus* n. sp., ♂ ( $\times 4.4$ ).

curved, with apical valves occupying nearly half the total length; their margins are first parallel, then converging in the apical third, the converging part strongly denticulated.

Male unknown.

*Length* of body 6 mm.; length with wings 10.5 mm.; elytra 5.5 mm.; ovipositor 3.2 mm.

This species is very distinct in its colouration.

*Range*.—CEYLON: St. Martins; Rangala (type, Col. M.).

269. *Metiochodes ornatus* n. sp.

(Fig. 190)

*Holotype*: Malaya: Selangor: Kuala Lumpur, ♂ (Paris Museum).

*Size* very small. General *colour* chestnut-brown. *Head* wide, chestnut-brown, a little shining; vertex sloping, ending in a narrow rostrum which bears the anterior ocellus in a small depression near the apex; face short, brown. Eyes big, almost rounded. Maxillary palpi dark brown at base, apex of 3rd joint and 4th and 5th joints white; 4th and 5th joints short, the last one very broad; 3rd joint of the labial palpi white. Antennae yellowish, with first joint chestnut-brown. *Pronotum* strongly transverse, with anterior margin a little convex, posterior margin strongly sinuated; disk light brown, very pubescent, presenting a rather broad, whitish, slightly shining band all along the anterior margin; a spot of the same colour in the middle of the posterior margin and a short lateral band are also to be seen; median line a little furrowed; lateral lobes with almost straight inferior margin, of the same colour as the disk. *Abdomen* brownish, pubescent. Anterior and median legs rather strong, the femora a little swollen, very dark brown, except at apex which is light; tibiae whitish, darkened beneath, the anterior ones rather strongly widening at base and bearing a large internal tympanum, the external face being only depressed. Posterior legs yellow. *Elytra* long and narrow, with parallel margins; brown, pubescent, with whitish veins; dorsal field presenting 5 quite straight, regularly spaced, parallel veins; transverse veinlets rather scarce and only feebly marked; lateral field a little darker than the dorsal one, with 4 veins, the *Sc.* being a little thickened, yellowish. Wings long, with anterior part brown, pubescent, posterior field iridescent.

*Length* of body 5 mm.; length with wings 8.5 mm.

*Range*.—This pretty little species is also found in BORNEO.

## Genus TRIGONIDIUM Rambur

1839. *Trigonidium* Rambur, *Faune Andal.*, 2, 31.

*Type*.—*Trigonidium cicindeloides* Rambur.

*Range*.—S. Europe, Africa, Madagascar, S. Asia, Australia, New Zealand.

*Elytra* presenting exactly the same venation in both sexes, with straight and parallel veins; between the principal veins,

there are false veins which give to the elytra a striated aspect. Wings of variable length.

*Key to the species of TRIGONIDIUM*

- |   |   |
|---|---|
| Elytra strongly convex; wings short;<br>anterior tibiae unperforated.                     | <i>cicindeloides</i> Rambur,<br>p. 304  |
| Elytra longer and less convex; wings<br>usually caudate; anterior tibiae per-<br>forated. | <i>humbertianum</i> (Sauss.),<br>p. 305 |

**270. *Trigonidium cicindeloides* Rambur**

1839. *Trigonidium cicindeloides* Rambur, *Faune Andal.*, 2, 39.  
Saussure, 1878, *Mém. Soc. Genève*, 25, 463, pl. 19  
(LXXIX), fig. 1. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68  
(1899), 804. Chopard, 1925, *Ann. Mag. nat. Hist.*, (9)  
15, 525. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 136.  
Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 292.  
Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 48. Sandrasagara,  
1954, *J. Bombay nat. Hist. Soc.*, 52, 552.

*Size* small. *Colouration* black, shining, with posterior legs yellowish. *Head* black; eyes rounded, protruding; 5th joint of maxillary palpi large, triangular. *Pronotum* transverse, rounded above, black with a long, greyish pubescence. *Abdomen* black above, yellowish beneath. *Cerci* yellow. *Legs*: Anterior and median either wholly black or with femora partly yellowish-brown; anterior tibiae unperforated. *Elytra* bluish-black, shining, strongly convex, as long as abdomen. Wings abortive. Subgenital plate of male conical, feebly notched at apex. *Ovipositor* compressed, curved, acute at apex.

*Length* of body 4.5–5 mm.; post. fem. 4–4.5 mm.; elytra 3–3.5 mm.; ovipositor 2.2 mm.

*Range*.—INDIA: West Bengal: Calcutta. Bihar: Siripur (P.M.). Assam: Mangaldai; Bhutan frontier (P.M.); Chabua; Dibrugarh (U.S.N.M.). Madras: Madura; Trichinopoly (P.M.); Attakkath (B.M.). Andaman Islands: Port Blair (P.M.). CEYLON: Mousakanda; Gammaduwa (Col. M.); numerous localities (Sandrasagara). MALAYA: Selangor: Kuala Lumpur (Sel. M.). BURMA: Bhamo (Go. M.); S. Shan States; Kalaw (Phil. M.).

Very widely distributed from South Europe to South Asia, and over all Africa.

271. **Trigonidium humbertianum** (Saussure)  
(Fig. 191)

1878. *Homoeoxiphus humbertianus* Saussure, *Mém. Soc. Genève*, 25, 468, pl. 17 (XLVIII), fig. 1. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 805.  
1924. *Metioche humbertiana* Chopard, *Rec. Ind. Mus.*, 26, 188.  
1925. *Trigonidium humbertianum* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 525. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 136. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 48. Sandra-sagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 552.

This species has exactly the same general aspect, colour and elytral venation as the preceding; the *genitalia* of the male and the *ovipositor* of the female are also quite similar. It differs from it, however, in the shape of the elytra which

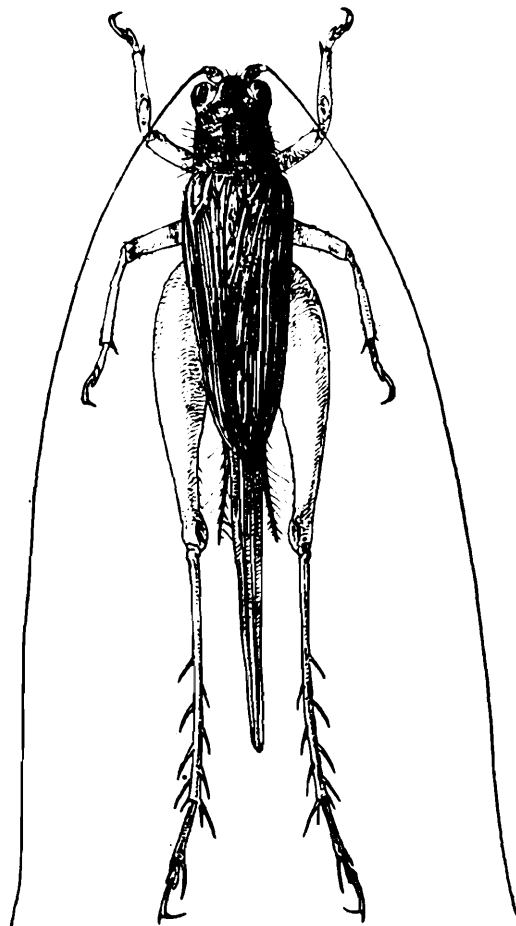


FIG. 191. *Trigonidium humbertianum* (Sauss.), ♂ ( $\times 3.7$ ).

are not so convex and are more elongated, in the long wings and the perforated anterior tibiae. A micropterous form, which is still closer to *cicindeloides*, is rather scarce. It is possible that the three forms belong to one single species.

*Range*.—INDIA: Bombay: Kawa State; Amarkantak (P.M.). Bihar: Monghyr; Siripur (P.M.); Kierpur (P.M.).\* Assam: Dibrugarh: Doom Dooma (U.S.N.M.). Orissa: Barkuda Island (P.M.). Madras: Coimbatore (Phil. M.). Travancore (Kerala): Mudda Thoray; W. Ghats (P.M.). CEYLON: numerous localities (Col. M.). MALAYA: Selangor: Kuala Lumpur (Sel. M.).

As widely spread as the preceding but only in the oriental region. It is represented in Africa by *Trigonidium guineense* (Sauss.), which is quite similar.

## 12. Family ENEOPTERIDAE

This important family includes all species presenting a depressed, subcordiform second joint of the tarsi, and posterior tibiae armed with spines and serrulated both at base and between the spines. The general shape, the elytral venation, as well as the genitalia of the male and the ovipositor of the female, present a considerable range of variation.

Three subfamilies can be distinguished as follows:

- |   |  |                       |
|---|--|-----------------------|
| 1 | Posterior tibiae usually armed with three long apical spurs, the median longer than the other two, both on internal and external face; posterior metatarsi long. . . . . | 2                     |
|   | Posterior tibiae with short, subequal external apical spurs; posterior metatarsi short. . . . .  | PODOSCIRTINAE, p. 326 |
| 2 | Head big; frontal rostrum with parallel margins; eyes protruding laterally. Elytra of the male moderately wide, generally with two oblique veins. . .                    | ENEOPTERINAE, p. 306  |
|   | Head small; frontal rostrum somewhat narrowing in front; eyes projecting forwards. Elytra of the male very wide, with several oblique veins. . . . .                     | ITARINAE, p. 314      |

### Subfamily ENEOPTERINAE

Frontal rostrum usually wide; eyes big, laterally protruding; posterior tibiae armed with 6 long apical spurs, the median being the longest on each side.

#### *Key to the genera of ENEOPTERINAE*

- |   |   |   |
|---|---|---|
| 1 | Frontal rostrum as wide as first antennal joint; posterior femora relatively short. . . . . | 2 |
|---|---|---|
- 20B

- Frontal rostrum narrow; lateral ocelli very close at base of the rostrum; posterior femora very long, with very narrow apical half. . . . . *Nisitru* Walk., p. 313
- 2 Frontal rostrum wide, feebly convex above; eyes feebly protruding. Elytra of male with a perfect mirror. . . *Xenogryllus* Bol., p. 307
- Frontal rostrum flat; eyes projecting. Elytra of male with mirror incompletely closed behind. . . . . *Cardiodactylus* Sauss., p. 311

## Genus XENOGRYLLUS Bolivar

1890. *Xenogryllus* Bolivar, *Jorn. Sci. Lisboa*, (2) 1, 232.  
1893. *Dionymus* Brunner, *Ann. Mus. Genova*, 33, 213.

*Type*.—*Xenogryllus eneopteroides* Bolivar.

*Range*.—Tropical Africa, S. Asia, Japan.

Frontal rostrum wide, anteriorly truncated, with angulate sides. Pronotum narrowing in front; disk flat; lateral lobes with angulated insertion. Legs rather long; anterior tibiae perforated with an oval external tympanum; posterior femora feebly swollen at base; posterior tibiae serrulated almost from the base; external apical spurs rather long, the median longer than the other two; medio-internal spur very long, extending almost to the apex of the metatarsus. Elytra of male with a rather large mirror, divided by an almost straight vein; apical field long; lateral field with *Sc.* bearing several branches. Elytra of the female with oblique veins. Ovipositor long, slender, with apical valves small, lanceolate.

### Key to the species of XENOGRYLLUS

- 1 Larger (30 mm.); mirror a little longer than wide; apical field with 5 veins; subgenital plate of female rather deeply notched at apex. . . . . *transversus* (Walk.), p. 310
- Smaller (20 mm.); mirror as long as wide; subgenital plate of female very feebly emarginate at apex. . . . . 2
- 2 Elytra of male with 2 oblique veins; transverse veinlets in the female elytra rather scarce. . . . . *marmoratus* (Haan), p. 308
- Elytra of male with 5 oblique veins; transverse veinlets more numerous in the female. . . . . *carmichaeli* (Chop.), p. 310

272. **Xenogryllus marmoratus** (Haan)

(Fig. 192)

1842. *Gryllus* (*Phalangopsis*) *marmoratus* Haan, *Temminck, Verhandl., Orth.*, 235.  
1924. *Madasumma marmorata* Chopard, *Rec. Ind. Mus.*, 26, 188.  
1930. *Dionymus marmoratus* Shiraki, *Ins. Matsum.*, 4, 232.

♂: *Size medium. General colouration light brown. Head* small, rounded, presenting a median brownish band extending to the apex of the rostrum; frontal rostrum a little

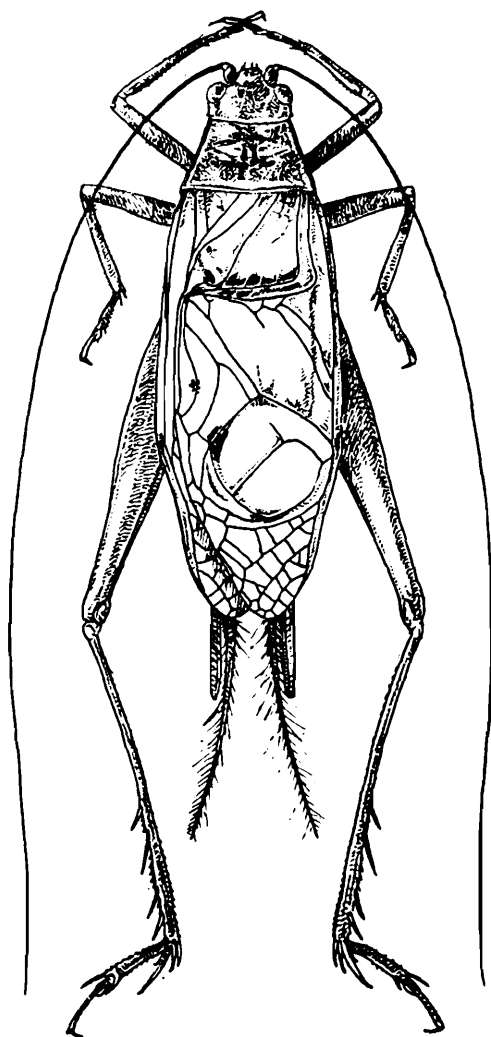


FIG. 192. *Xenogryllus marmoratus* (Haan), ♂ ( $\times 2.2$ ).

broadier than the first antennal joint. Face rather long, yellowish-brown; forehead convex, a little punctated. Eyes rounded, feebly protruding; anterior ocellus large, oval, at extremity of the rostrum. Antennae slender, yellowish.

Palpi brownish; 4th joint of the maxillary ones a little shorter than 3rd, 5th rather long and rather strongly widening at apex. *Pronotum* transverse, strongly narrowing in front, with feebly concave anterior margin, posterior margin straight; disk flat, presenting a median brown band; lateral lobes one and a half times as long as high, with feebly sinuated inferior margin, strongly rounded anterior and posterior angles; their colour is brown, the limit with the disk marked by a yellow line. *Abdomen* light brown; epiproct longer than broad, with rounded apex, somewhat hollowed surface; subgenital plate large, with apical margin feebly notched. *Legs* rather long, of the same colour as the body; anterior tibiae perforated with an oval external tympanum. Posterior femora rather long and slender; tibiae armed with 4 spines on each margin, densely denticulated at base and between the spines; supero-external apical spur very small, median one twice as long as the inferior; median internal spur very long, extending farther than the middle of the metatarsus; this is rather long, compressed, armed above with 7-8 denticles on the external margin. *Elytra* longer than the abdomen, pale testaceous, almost transparent, presenting a few small brown spots in the anal angle, along the stridulating vein, between the two first chords and in the angles of the mirror; this is as long as wide, almost rounded, divided in the middle by an angulate vein; diagonal vein scarcely longer than the mirror; 2 oblique veins; apical field rather short, presenting 3 veins and a reticulation composed of large, regular cells; lateral field translucent with a brown band along the superior edge; *Sc.* bearing 12 regularly spaced veins. Wings a little longer than the elytra.

♀: General shape and colouration as in the male. *Elytra* pale testaceous with a small brown spot near the base between the median and the cubital veins; dorsal field with rather regular, oblique veins, 10 in number of which 7 come from the *Cu.*; transverse veinlets forming long areolae except along the cubital vein, where they are small and close; *Sc.* bearing 8 branches. *Ovipositor* long and slender with apical valves small, oval, feebly acute.

*Length* of body ♂ 19.5 mm., ♀ 18.5 mm.; length with wings ♂ 23-23.5 mm., ♀ 23 mm.; pronot. 3 mm.; post. fem. ♂ 14.5 mm., ♀ 18.5 mm.; post. tib. ♂ 14 mm., ♀ 16.5 mm.; elytra ♂ 16.5 mm., ♀ 14 mm.; ovipositor 16.5 mm.

*Range*.—INDIA: Orissa: Barkuda Island (I.M.). CEYLON: Kandy (P.M.). JAPAN (type, L.M.). CHINA: Kiangsu. FORMOSA.



### 273. *Xenogryllus transversus* (Walker)

1869. *Platydictylus transversus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 88.  
 1893. *Dionymus calcaratus* Brunner, *Ann. Mus. civ. St. nat. Genova*, 33, 213, pl. 6, fig. 79. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 294.

Very close to the preceding species but much larger; brown lines of the head more visible and produced on the pronotum. *Elytral* venation of the male almost similar; mirror a little longer than wide; oblique veins longer, straight, parallel; apical field longer, with 5 veins; *Sc.* bearing 19 branches in the male, 10 in the female.

*Length* of body ♂ 31 mm., ♀ 25 mm.; length with wings ♂ 37 mm., ♀ 35 mm.; post. fem. 23 mm.; elytra ♂ 25.5 mm., ♀ 20.5 mm.; ovipositor 23.5 mm.

*Range*.—INDIA: Assam: Ledo (Phil. M.). SIKKIM (P.M.). EAST PAKISTAN: Sylhet (type of *transversus*, B.M.). BURMA: Bhamo (type of *calcaratus*, Go. M.).

### 274. *Xenogryllus carmichaeli* (Chopard)

1928. *Dionymus carmichaeli* Chopard, *Rec. Ind. Mus.*, 30, 30.

Same size as *marmoratus*. *Colouration* testaceous-brown. *Head* small, shining, rufous-brown with indistinct light bands on the occiput; frontal rostrum rather broad, truncated at apex. Palpi testaceous; 4th joint of the maxillary ones a little shorter than 3rd, 5th slightly enlarged at apex, feebly darkened. Eyes rounded, slightly protruding; ocelli yellow, rather large. *Pronotum* somewhat narrowing in front; anterior margin feebly concave, posterior margin a little sinuated; disk almost flat, rufous; lateral lobes lighter in the inferior part, with inferior margin straight, anterior angle of 90°, but slightly rounded, posterior angle rounded. *Abdomen* brownish; subgenital plate of the male long, narrow. *Legs* rufous. Anterior and median femora slightly marbled with brown and presenting a not very distinct, brown ring, towards the apex; anterior tibiae a little swollen at base, presenting an oval external tympanum, the internal one being reduced to an undulating slit; tarsi rather long, the metatarsus equaling the third joint in length. Posterior femora feebly swollen, with a brown ring near the apex; tibiae brown, denticulated at base and armed with 4 spines on each superior margin; infero-internal spur short, middle and superior ones rather long, especially the former; inferior and superior external

spurs short, the median much longer; metatarsi long, armed with 6 or 7 denticles on each side.

♂: *Elytra* long and rather wide; stridulating vein a little sinuate, strongly angulate; mirror transverse, divided in the middle; diagonal vein rather long, a little curved; chords parallel, feebly convex; 5 somewhat irregular oblique veins; apical field long, rounded, with 7 sectors; lateral field presenting 4 veins and the *Sc.* bearing 7 branches. Wings rather long.

♀: *Elytra* brown, presenting in the dorsal field 8 oblique and rather regularly distant veins; transverse veinlets forming rather regular, long areas; lateral field not so overlapping as in male; *Sc.* bearing 3 branches. *Ovipositor* almost straight, with apical valves small, lanceolate, separated by a small depression.

*Length* of body 17 mm.; length with wings 25 mm.; pronot. 2.5 mm.; post. fem. 9 mm.; elytra 15 mm.; ovipositor 11 mm.

This species has much the same general shape as *X. marmoratus*, but differs from it in its more rufous, uniform colouration, its shorter legs and the medio-internal spur of the posterior tibiae shorter; in the male, the elytral venation is very different, while in the female, the transverse veinlets are more numerous.

*Range*.—INDIA: West Bengal: Darjeeling Dist. (type, I.M.).

## Genus CARDIODACTYLUS Saussure

1878. *Cardiodactylus* Saussure, *Mém. Soc. Genève*, 25, 517.

*Type*.—*Gryllus* (*Platydictylus*) *novae-guineae* Haan.

*Range*.—Malaya, Malay Archipelago, New Guinea, Australia.

General shape rather short and broad. Legs strong; anterior tibiae with rather large, oval tympanum on their external face, the internal tympanum being reduced to a slit; metatarsi short; posterior femora rather short, with apical part attenuated but not filiform; posterior tibiae strongly serrulated, armed with 4 spines on each margin; internal apical spurs long, especially the median one; external spurs rather short, the median a little longer than the other two. *Elytra* of the male with mirror small, narrow, anteriorly obtuse, more or less reticulated in its posterior part; 2 oblique veins which are in the shape of a zigzag. *Elytra* of the female coriaceous, opaque, densely reticulated.

*Key to the species of CARDIODACTYLUS*

- Ovipositor rather strong, with smooth superior apical valves. *novae-guineae* (Haan), p. 312
- Ovipositor more slender with finely denticulated apical valves. *praecipuus* (Walk.), p. 312

**275. *Cardiodactylus novae-guineae* (Haan)**

1842. *Gryllus* (*Platydictylus*) *novae-guineae* Haan, *Temminck, Verhand. Orth.*, 233.
1878. *Cardiodactylus novae-guineae* Saussure, *Mém. Soc. Genève*, 25, 519, pl. 17 (LV), fig. 1, pl. 19 (LXXVIII), fig. 2.
- Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

A rather large and strong species. *Colouration* rufo-testaceous with yellow spots on the elytra. *Head* short; vertex rounded, adorned with four light bands; frontal rostrum a little wider than the first antennal joint, with parallel margins. Eyes rounded, protruding. Antennae brownish with four whitish rings. *Pronotum* feebly narrowing in front; disk spotted with brown, with edges almost carinated. *Legs* strong, more or less marbled with brown. *Elytra* as long as abdomen; in the male, they are brownish, adorned with rather variable large yellow spots. *Elytra* of the female greyish with a yellowish spot on the humeral edge. *Ovipositor* rather long, straight, with lanceolate apical valves. In both sexes the wings are a little longer than the elytra.

*Length* of body ♂ 18–23 mm., ♀ 20–26 mm.; pronot. ♂ 3 mm., ♀ 3–4 mm.; post. fem. 15–17.5 mm.; elytra 14–19 mm.; ovipositor 15–26 mm.

*Range*.—MALAYA: Pahang: Kuala Tahan (Sel. M.).

This species is widely distributed in the Malay Archipelago, in Papuasia and North Australia.

**276. *Cardiodactylus praecipuus* (Walker)**

1869. *Platydictylus praecipuus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 83.
1925. *Madasumma praecipua* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 533.
1936. *Cardiodactylus praecipuus* Chopard, *Ceyl. J. Sc.*, (B) 20, 75. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

This species is known from the type specimen only, recorded by Walker from Ceylon, without exact locality. It is very close to the preceding, but with more slender ovipositor, the superior valves of which are finely denticulated.

## Genus NISITRA Walker

1869. *Nisitra* Walker, *Cat. Derm. Salt. Br. M.*, 1, 91.

1878. *Nisitrus* Saussure, *Mém. Soc. Genève*, 25, 511.

*Type*.—*Gryllus* (*Platydictylus*) *vittatus* Haan.

*Range*.—Malaya and Malay Archipelago, as far as Ceram.

The species of this genus are rather similar to those of *Cardiodictylus*, but they are smaller and more slender, with longer legs, chiefly the posterior ones, the femora being filiform in their apical half. The colouration is blackish varied with yellow.

277. *Nisitra hyalina* (Saussure)

1878. *Nisitrus hyalinus* Saussure, *Mém. Soc. Genève*, 25, 516.

A rather small species. *Colouration* blackish above, yellowish beneath, feebly pubescent. *Head* black above; frontal rostrum very narrow, more or less spotted with yellow; face yellow; cheeks yellow with a wide blackish band. *Antennae* brown with very distant small yellow rings. *Eyes* strongly protruding. *Pronotum* wider than long, black above, feebly convex; lateral lobes with inferior half yellow. *Legs* long and slender, yellowish with a rather abundant, fine brown pubescence; anterior tibiae with an oval, external tympanum, the internal one reduced to a slit; posterior tibiae very long, with a long, filiform apical part, its apex blackish. *Elytra* a little shorter than the abdomen in both sexes.

♂: *Elytra* blackish and partly transparent above, with two rather large yellow spots, one at base, the other on the internal margin, behind the anal knot; mirror very acute anteriorly, incompletely closed posteriorly; diagonal vein very short; 2 oblique veins; lateral field transparent with a rather wide brown band along the superior edge. *Wings* a little longer than the elytra, transparent with only a narrow brown band in the anterior field. *Subgenital plate* long, strongly narrowing towards the apex.

♀: *Elytra* black with yellow veins, forming a rather wide and irregular reticulation. *Ovipositor* long and slender, with narrow, smooth apical valves.

*Length* of body 15–17 mm.; pronot. 2–2.2 mm.; post. fem. 15–18 mm.; elytra 9.5–10.5 mm.; ovipositor 12.5–18 mm.

*Range*.—BURMA: Rangoon (U.S.N.M.). SUMATRA. BORNEO.

### Subfamily ITARINAE

Head small, with narrow frontal rostrum; armature of the posterior tibiae as in the *Eneopterinae*. Elytra of male very wide, with several oblique veins.

#### Key to the genera of ITARINAE

- 1 Elytral venation similar in both sexes;  
tenth tergite of male remarkably  
specialized. . . . . *Pseuditara* n. gen., p. 317.
- Elytra of male with a perfect mirror;  
tenth tergite without special differen-  
tiation. . . . . 2
- 2 Legs long; anterior tibiae compressed,  
perforated with an oval tympanum  
on each side; posterior tibiae armed  
with long, movable spines; supero-  
internal apical spur very long, as  
long as the metatarsus; mirror of  
the male elytra divided by two or  
three veins. Ovipositor with den-  
ticulated apical valves. . . . . *Heterotrypus* Sauss.,  
p. 320
- Legs rather short; anterior tibiae with  
an oval, external tympanum, the  
internal one slit-like; spines of the  
posterior tibiae short; supero-internal  
apical spur shorter than the median  
one. Mirror of the male divided by  
one vein only. Ovipositor with lan-  
ceolate, smooth apical valves. . . . . 3
- 3 Head relatively big, round. Elytra of  
male moderately widened, with very  
short apical field. General habitus  
of a *Gryllus*. . . . . *Gryllitara* Chop., p. 325
- Head small. Elytra of male very  
wide, with long apical field. . . . . *Itara* Walk., p. 314

### Genus ITARA Walker

1869. *Itara* Walker, *Cat. Derm. Salt. Br. M.*, 1, 64.

1878. *Phorminctor* Saussure, *Mém. Soc. Genève*, 25, 549.

*Type*.—*Gryllus* (*Phalangopsis*) *microcephalus* Haan.

*Range*.—Malay Archipelago, Malaya, Vietnam.

Head small, rounded; frontal rostrum rather wide, convex above; palpi short. Pronotum strongly narrowing in front, with rounded edges. Legs rather short, slender, pubescent; anterior tibiae presenting a long, oval external tympanum, the internal face with a swelling opening backwards by a slit. Posterior femora short, feebly dilated at base; posterior tibiae serrulated and armed with short spines, of which the last external is shorter than the preceding; apical spurs long, the median the longest on each side. Elytra of male very large,

ample; mirror transverse; oblique veins numerous; *Sc.* curved towards the apex, bearing numerous branches; apical field long with many veins. Ovipositor with apical valves lanceolate, smooth.

*Key to the species of ITARA*

Size larger (17–20 mm.); apical field of male elytra very long, presenting 7–9 sectors.

*microcephala* (Haan),  
p. 315

Size smaller (15–16 mm.); apical field of male elytra shorter with 6 sectors only.

*minor* Chop., p. 316

**278. *Itara microcephala* (Haan)**

(Figs. 194, 195)

1842. *Gryllus* (*Phalangopsis*) *microcephalus* Haan, *Temminck, Verhand., Orth.*, 236.

1878. *Phormincter microcephalus* Saussure, *Mém. Soc. Genève*, 25, 550, pl. 17 (LII), figs. 1–8i, e. Brunner, 1893, *Ann. Mus. Genova*, 13, 212.

1925. *Itara microcephala* Chopard, *Ann. Soc. ent. Fr.*, 94, 316, fig. 47 (*non* 37). Chopard, 1929, *Bull. Raffles Mus.*, No. 2, 113. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 138. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 294.

*Colour* fulvo-testaceous, pubescent. *Head* small, brown; frontal rostrum a little wider than the first antennal joint, feebly convex above. Palpi short; 5th joint of the maxillary palpi enlarged, obliquely truncated at apex. *Pronotum* rufous-brown, pubescent, narrowing in front; disk nearly flat with rounded edges; lateral lobes square with rounded posterior angle. *Legs* slender, a little compressed. Posterior femora short, feebly dilated at base; posterior tibiae shorter than the femora, armed with 4 spines on each margin, finely serrulated in the basal half, without denticles between the spines; medio-internal apical spur extending almost to the middle of the metatarsus.

♂: *Pronotum* very wide posteriorly. *Elytra* very large, longer than the abdomen; dorsal field very wide; mirror large, in the shape of a transverse ellipsoid, divided in the middle by a feebly curved vein; 5 oblique veins, the first one very long, sinuated; apical field long or very long, presenting 7 to 9 regularly distant veins; reticulation close and regular; lateral field wrapping the part of the body; *Sc.* bearing 8–10 branches. Wings feebly exceeding the elytra. *Genitalia* with superior part denticulated at apex (figs. 194, 195).

♀: Smaller than the male; *pronotum* not so strongly widening backwards. *Elytra* as long as the abdomen; dorsal

field with 8 rather regular, oblique veins; lateral field with 5-6 veins, the *Sc.* plain or furcate. *Ovipositor* straight, slender; apical valves small, lanceolate with smooth margins.

*Length* of body ♂ 18-20 mm., ♀ 17 mm.; length with wings ♂ 21-28 mm., ♀ 21 mm.; pronot. ♂ 3 mm., ♀ 2.6 mm.; post. fem. ♂ 12 mm., ♀ 9 mm.; elytra ♂ 20.5-22 mm., ♀ 15 mm.; ovipositor 9-13 mm.

*Range*.—INDIA: Madras: Nilgiris; Sudalur; Sukna; Sidapur (B.M.). BURMA: Bhamo (Go. M.); Tenasserim (B.M.). MALAYA: Selangor: Bukit Kutu; Kuala Lumpur (Sel. M.); Fraser's Hill (P.M.). Perak: Penang; Jor Camp; Batang Padang (Sel. M.). Singapore (Sel. M.). Pahang: Kuala Tahan; Cameron Highlands (Sel. M.). SUMATRA (type, L. M.). BORNEO.

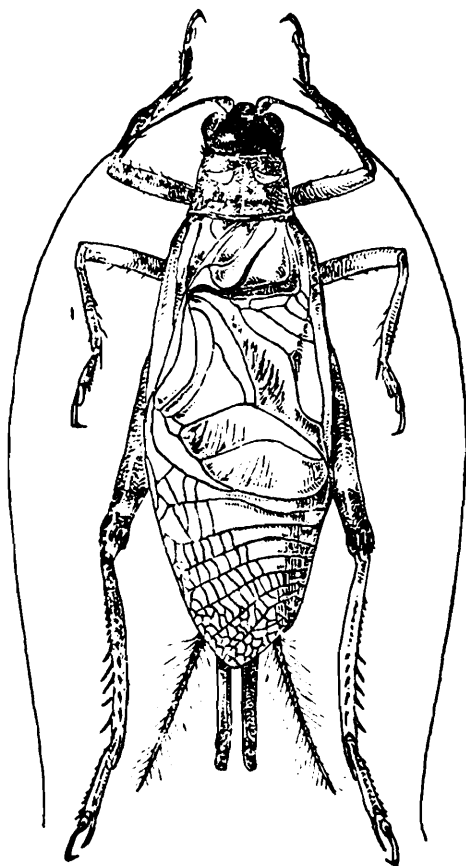


FIG. 193. *Itara minor* Chop., ♂ ( $\times 2.5$ ).

## 279. *Itara minor* Chopard

(Figs. 193, 196 and 197)

1925. *Itara minor* Chopard, *Ann. Soc. ent. Fr.*, 94, 312, figs. 38, 39. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 138.

Very close to the preceding; smaller; lateral lobes and apex of the posterior femora brown. Apical field of the male

elytra shorter, presenting 6 veins only. *Genitalia* (figs. 196, 197) differing chiefly in the shape of the superior part, which in *microcephala* is more truncated and denticulated. *Ovipositor* of the female longer, slender, with apical valves narrower and more acute.

*Length* of body ♂ 15 mm., ♀ 16–20 mm.; length with wings 17–20 mm.; pronot. 2.2 mm.; post. fem. 8.5–9 mm.; elytra ♂ 13–16 mm., ♀ 12–15 mm.; ovipositor 8–13 mm.

*Range*.—INDIA: West Bengal: Darjeeling (P.M.). Assam: Garo Hills (P.M.). MALAYA: Perak: Batang Padang. Pahang: Lubak Tahang; Kuala Tahan; Kuala Teku. Selangor: Ginting Bidai (Sel. M.). TONKIN.

### Genus PSEUDITARA n. gen.

*Type*.—*Pseuditara lineaticeps* n. sp.

Head small; vertex sloping; frontal rostrum narrow. Legs rather short; anterior tibiae strongly dilated at base, perforated with a small external tympanum and a large internal one; posterior femora moderately swollen at base; posterior tibiae much shorter than the femora, armed with 3 spines on each margin, serrulated in the basal half; median external apical spur longer than the other two; infero-internal spur very small, median and superior ones long, especially the median; posterior metatarsi very long, armed above with 6–7 denticles. Elytra similar in both sexes. Tenth abdominal tergite of male remarkably specialized (fig. 198). Ovipositor rather short, with apical valves short, wide, smooth.

### 280. *Pseuditara lineaticeps* n. sp.

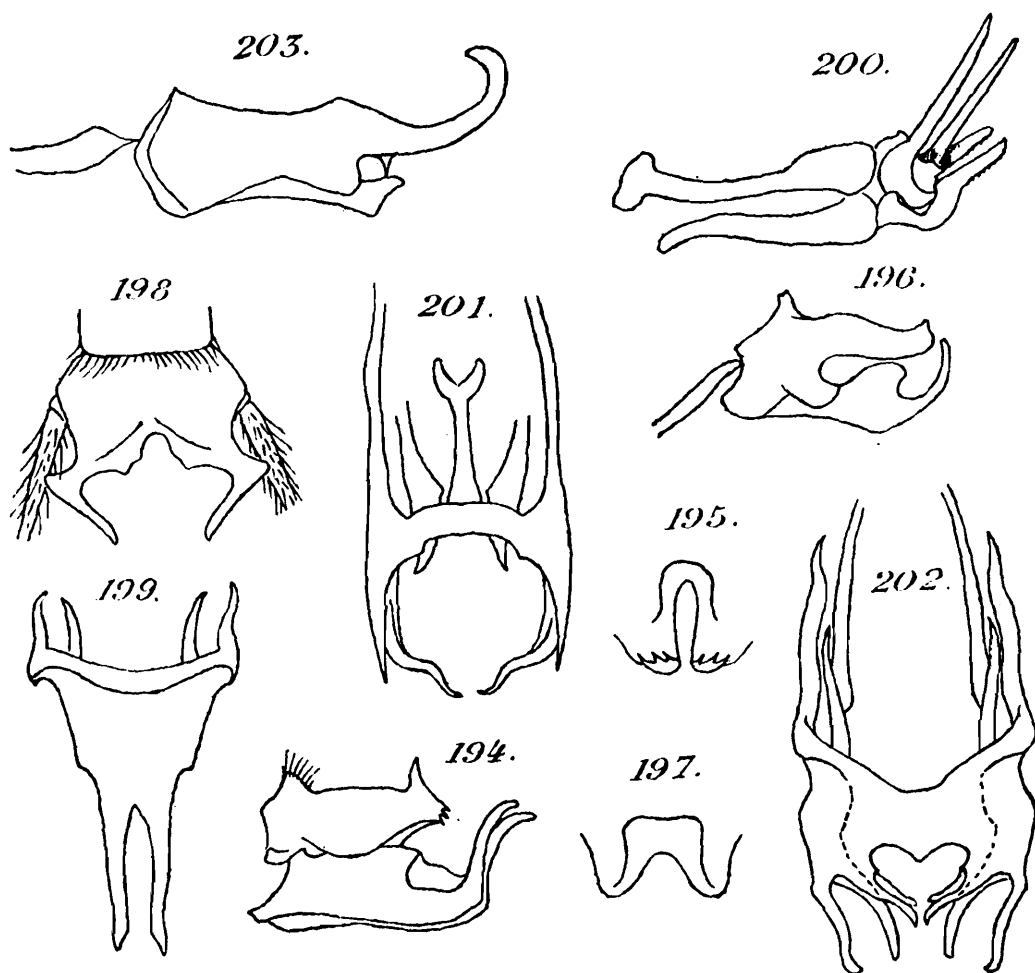
(Figs. 198, 199, 200 and 204)

*Holotype*: Burma: Nam Tisang, alt. 3,000 ft. (F. Kingdon Ward, 20.V.1926), ♀; *allotype*: same locality, ♂ (British Museum).

♀: General shape and aspect of a female *Itara*. Head rather small; colour testaceous, adorned above with 5 longitudinal brown bands, the median widening on the rostrum, abruptly interrupted behind the anterior ocellus; frontal rostrum short, as broad as first antennal joint, shagreened above. Face short, yellowish, with a narrow brown band on the superior margin of the clypeus and along the internal margin of the antennal sockets. Eyes feebly protruding; lateral ocelli large, anterior one very small. Antennae



yellowish. Palpi short, brown; 4th joint of maxillary palpi shorter than 3rd, 5th triangular. *Pronotum* nearly twice as wide as long, feebly narrowing in front; anterior margin very feebly concave, posterior margin a little convex; disk almost flat, pubescent, presenting a rather deep median furrow in the anterior half; colouration light testaceous, with the median line and the usual impresses brown; two small spots of the



FIGS. 194 to 203. 194. *Itara microcephala*, genitalia. 195. apex of same, seen from front. 196. *I. minor*, genitalia. 197. apex of same. 198. *Pseuditara lineaticeps*, 10th abdominal tergite of male. 199. *id.*, genitalia. 200. *id.*, lateral view. 201. *Heterotrypus buqueti*, genitalia. 202. *id.*, of *H. gracilis*. 203. *Gryllitara pendleburyi*, genitalia, lateral view.

same colour are seen near the anterior margin, and two others a little before the posterior margin; lateral lobes a little longer than deep, with straight inferior margin, rounded angles; their colour is dark brown, with the anterior angle yellowish. *Abdomen* brown; subgenital plate narrowing towards the apex, very slightly notched. Anterior and

median *legs* rather short, pubescent; femora and tibiae yellowish with two brown rings; anterior tibiae rather strongly dilated at base; internal tympanum very large, external one much smaller, near the base; tarsi brown, metatarsus rather short, 2nd joint small, slightly widening at apex, 3rd as long as the other two. Posterior femora rather long, moderately dilated at base; external face obliquely striated with brown in the basal half, presenting in the apical half two brown rings; posterior tibiae yellow with two brown

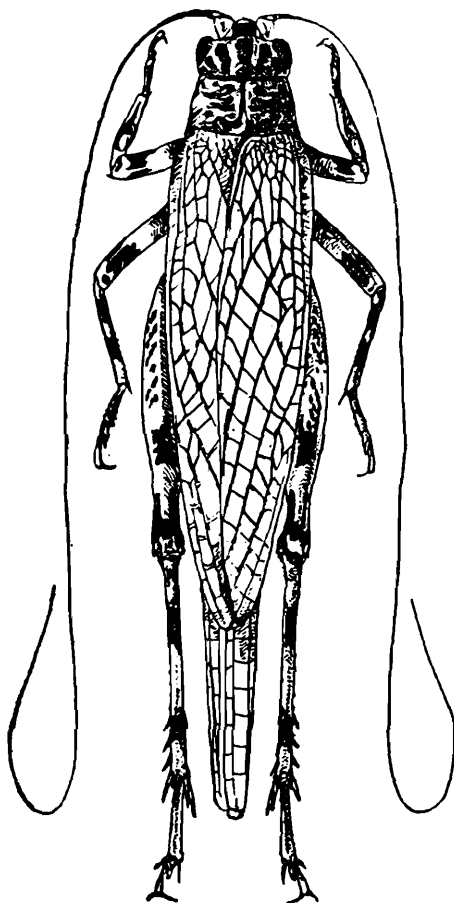


FIG. 204. *Pseuditara lineuticeps* n. sp., ♂ ( $\times 4.4$ ).

rings, armed with 3 spines on each margin, denticulated before the spines and presenting one denticle between the two first spines of the internal margin; superior and inferior apical spurs of the external face short, the median much longer; inferior internal spur equalling the external, the other two rather long, especially the median; posterior tarsi long, the metatarsus yellow with brown top. *Elytra* light brown with dark veins, pubescent; cubital vein bearing 3 branches, the

*Cup.* divided near the base; reticulation rather regular, forming square areolae; lateral field rather low, presenting 4 veins and the *Sc.* which is plain. Wings longer than the elytra. *Ovipositor* rather short and thick, compressed; apical valves feebly widened, lanceolate.

♂: Quite similar to the female in its general shape and venation of the elytra; *Sc.* divided. Tenth abdominal tergite large, somewhat dilated, strongly notched at apex with two long, narrow apical lobes (fig. 198). *Genitalia* long, narrow, deeply divided at apex (figs. 199, 200).

*Length* of body 13 mm.; length with wings 21 mm.; post. fem. 7.5 mm.; elytra 13 mm.; ovipositor 6.5 mm.

*Range.*—BURMA. This species is also found in Vietnam.

## Genus HETEROTRYPUS Saussure

1878. *Heterotrypus* Saussure, *Mém. Soc. Genève*, 25, 537.

*Type.*—*Heterotrypus africanus* Saussure.

*Range.*—Central Africa, Seychelles Islands, South Asia, Formosa, Caroline Island, Solomon Islands, New Guinea.

Differing from *Itara* by the legs being long and slender; anterior tibiae perforated on both sides; posterior femora with a linear apical part; posterior tibiae armed on each margin with 4 long, pubescent spines. Elytra of male very large, ample; mirror divided by 2 or 3 veins; oblique veins numerous. Ovipositor of female with apical valves denticulated on their inferior margin.

### Key to the species of HETEROTRYPUS

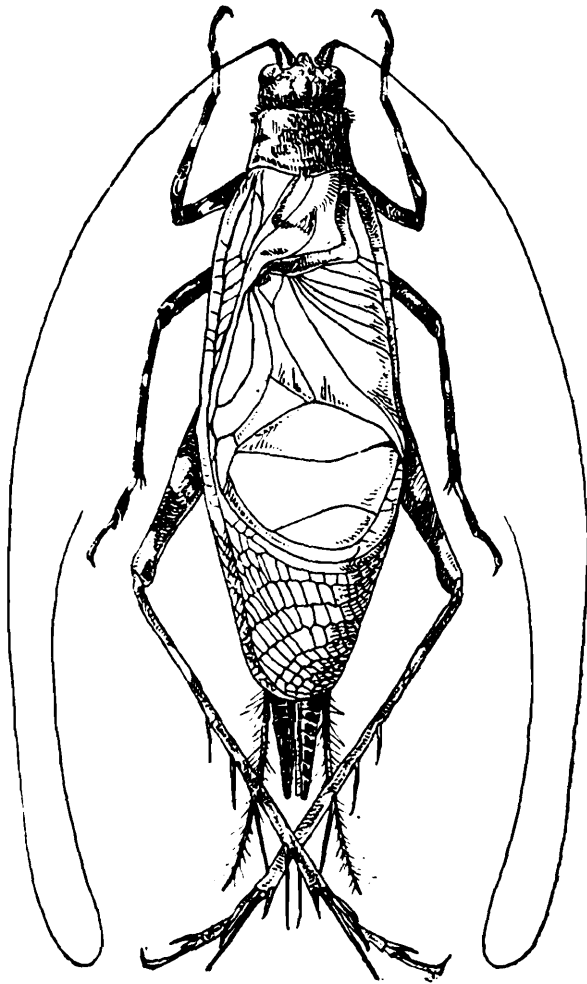
- |   |   |                                |
|---|---|--------------------------------|
| 1 | General shape rather long and narrow;<br>mirror of the male as long as wide; 4<br>to 5 oblique veins. | 2                              |
|   | General shape wider; mirror wider<br>than long; 7 oblique veins.                                      | 3                              |
| 2 | Male elytra with 4 oblique veins;<br>subgenital plate of male with rounded<br>posterior margin.       | <i>elegans</i> Chop., p. 323   |
|   | Male elytra with 5 oblique veins;<br>subgenital plate of male long with<br>truncated apex.            | <i>gracilis</i> n. sp., p. 324 |
| 3 | Oblique veins of the male emerging<br>from the same point near the anal<br>knot.                      | <i>buqueti</i> (Serv.), p. 321 |
|   | Oblique veins inserted all along the<br>stridulatory vein.....  | <i>vicinus</i> Chop., p. 322   |

281. **Heterotrypus buqueti** (Serville)

(Figs. 201, 205)

1839. *Platydictylus buqueti* Serville, *Ins. Orth.*, 367.1878. *Heterotrypus buqueti* Saussure, *Mém. Soc. Genève*, 25, 542, pl. 17 (LI), fig. 2. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 139.

*Size* rather large. *Colour* fulvo-testaceous; head and pronotum covered with a thick down of fulvous hairs, strewn with brown bristles. *Head* small, brown above; face adorned with brown spots; vertex convex; frontal rostrum narrow,

FIG. 205. *Heterotrypus buqueti* (Serv.), ♂ ( $\times 3.15$ ).

compressed. *Pronotum* short, chestnut-brown with two transverse brown spots; posterior margin sinuated. *Legs* moderately long, slender, annulated with brown. Anterior tibiae dilated at base and perforated with two oval tympana. Posterior femora moderately swollen at base, with apical

third linear, their external face striated with brown; posterior tibiae armed with 4 long, pubescent spines on each margin, serrulated; supero-internal apical spur extending to the apex of the metatarsus, which is rather long, and serrulate above on the external margin.

♂: *Head* very small; *pronotum* narrowing in front. *Elytra* very large and wide; mirror large, rounded, as long as wide, with very obtuse anterior angle, divided by two curved transverse veins; 6 long oblique veins, 5 of which emerge from the same point near the anal knot; 4-5 smaller ones in the angle of the stridulating vein; apical field long; lateral field with *Sc.* bearing 17-20 branches. Wings longer than the elytra. *Genitalia* with superior part ending in two long points, inferior parts undulated (fig. 201).

♀: *Pronotum* not so narrow in front. *Elytra* rather narrow; dorsal field presenting 9 regularly distant veins, 6 of which are branches of the *Cu.*; reticulation composed of regular square areolae; *Sc.* bearing 12 stems. *Ovipositor* short, feebly curved, rather thick; apical valves a little wider than the stem, crenulated beneath, presenting on the external face 4 strong curved ridges.

*Length* of body 18-19 mm.; length with wings 23-24 mm.; pronot. 3-3.1 mm.; post. fem. 13.5-14 mm.; elytra ♂ 19.5 mm., ♀ 17.5 mm.; ovipositor 4.8-5 mm.

*Range*.—MALAYA: Perak: Jor; Batang Padang. Johore: Kota Tinggi (Sel. M.). JAVA (type, L.M.). MALAY ARCHIPELAGO. BORNEO.

## 282. *Heterotrypus vicinus* Chopard

1928. *Heterotrypus vicinus* Chopard, *Spol. Zeyl.*, 14, 206, pl. 16, figs. 18-22. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 71. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 559.

Very close to the preceding, which it resembles in general shape and colouration, and in having the *legs* rather neatly ringed with brown. *Elytra* of the male somewhat wider, with neuration differing in a few details: 7 oblique veins, but the first five of them are inserted all along the cubital vein instead of emerging from one point as in *buqueti*; mirror a little wider, very irregularly divided, the second vein placed very posteriorly; anal field with 5 sectors and a very fine reticulation forming small, long areas; *Sc.* with about 25 nearly perpendicular branches. Epiproct rather acute at apex. *Genitalia* intricate, formed of 6 paired pieces disposed in three superimposed groups. Female differing from *buqueti* in the

shape of the valves of the *ovipositor* which are shorter and have more acute teeth.

*Length* of body 17 mm.; length with wings 25.5 mm.; post. fem. 14 mm.; elytra ♂ 20 mm., ♀ 18 mm.; ovipositor 5 mm.

*Range*.—CEYLON: Urugalla (type, B.M.).

### 283. *Heterotrypus elegans* Chopard

1936. *Heterotrypus elegans* Chopard, *Ceyl. J. Sc.*, (B) 20, 72, figs. 16, 17. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

♂: *Size* medium; shape rather elongate. *Colouration* dark brown varied with testaceous. *Head* a little narrower than the pronotum; occiput testaceous with 6 longitudinal brown lines, the two median wider and uniting forwards on the frontal rostrum; this is narrow, with the two lateral ocelli, rather large, at base, the anterior one at apex; face testaceous with two narrow brown lines extending from the vertex to the labrum; cheeks marked with brown beneath the eyes. Palpi testaceous, rather long; 4th joint of the maxillary ones shorter than 3rd, 5th slightly enlarged at apex. Antennae brown, very long and slender. Eyes projecting forwards. *Pronotum* transverse, with feebly convex anterior margin, posterior one sinuated; disk convex, irregular, dark brown, a little shining, with hollowed, lighter median line; lateral lobes with inferior margin ascending posteriorly, presenting a somewhat irregular yellowish band in the middle. *Abdomen* black above, yellowish beneath; epiproct triangular, rounded at apex. *Legs* long, very neatly annulated with testaceous-yellow and brown. Anterior tibiae perforated by a small oval tympanum on each face, at base, anterior and median metatarsi moderately long, equalling the third joint. Posterior femora rather thick at base; slender at apex, a little striated with brown on external face and adorned with two brown rings before the apex; posterior tibiae weakly serrulated and armed with 4 long, hairy spines on each margin; apical spurs testaceous, infero- and supero-external ones short, the median longer; supero-internal spur equalling the metatarsus, median one a little shorter; metatarsi compressed, serrulated on the external margin only. *Elytra* long and relatively narrow, dark brown; mirror as wide as long, almost pentagonal in shape, divided by two veins into three nearly equal parts; chords very short, two first ones united at base, strongly diverging afterwards; diagonal vein very short; anal field long; 4 oblique veins, rather regularly spaced; apical field long, presenting 4 sectors and a wide reticulation; lateral field

almost transparent with a brown band in its superior part, *Sc.* bearing about 10 parallel branches. Wings lengthily caudate. *Genitalia* rather plain, composed of a large superior piece, notched in the middle and each lobe furcate at apex, and a small inferior piece.

♀: *Head*, *thorax* and *legs* as in male. Subgenital plate small, feebly notched at apex. *Elytra* rather narrow; dorsal field presenting 8 nearly transverse, regularly distant veins; transverse veinlets a little curved, forming large, lengthened areolae; lateral field much less developed than in the male; *Sc.* bearing 8 more oblique branches. Wings caudate. *Ovipositor* short, with apical valves presenting a large basal tooth, a smaller distal one and two apical ones.

*Length* of body 14 mm.; length with wings 20 mm.; post. fem. 15 mm.; elytra 17 mm.; ovipositor 7.5 mm.

*Range*.—CEYLON: Kitulgala, on island rocks in the river (type, Col. M.); Belihuloya; Labigama; Rakwana; Madola (Sandrasagara).

## 284. *Heterotrypus gracilis* n. sp.

(Fig. 202)

*Holotype*: Malaya: Pahang: Cameron's Highlands (H. M. Pendlebury, 29.V.1931), at light, ♂ (Selangor Museum).

*Size* relatively small, rather slender; rather vividly coloured; covered with a fine, bent pubescence. *Head* adorned with 4 irregular, brown bands; frontal rostrum a little narrower than the first antennal joint; face and cheeks yellow. Palpi yellowish-brown; 4th joint of the maxillary palpi a little shorter than 3rd, 5th long, rather strongly dilated at apex. Eyes rounded, protruding; ocelli rather small. *Pronotum* a little broader than long, with anterior margin straight, posterior margin sinuated; disk rufous adorned with two large brown spots along the posterior margins; lateral lobes with inferior margin slightly ascending posteriorly, anterior angle a little rounded, their superior part brown, inferior part yellow, anterior angle brown. *Abdomen* yellowish-brown; subgenital plate long, truncated at apex, with rounded angles. *Legs* annulated with brown. Posterior femora rather strongly dilated at base, darkened on the external face. Spines of the posterior tibiae yellow; internal superior apical spur very long, almost equalling the metatarsus. *Elytra* rather narrow, finely pubescent, spotted with brown around the mirror and in the apical field; mirror as long as broad, almost circular, feebly angulated in front; diagonal vein short,

very close to the first chord, which is angulated, the second chord, strongly sinuated, is very remote at apex from the first one; 5 oblique veins, inserted on the first half of the stridulating vein, regularly spaced, diverging; apical field short, with 3 veins; lateral field almost transparent, Sc. bearing about 15 veins. Wings a little longer than the elytra. *Genitalia* trifurcate on each side (fig. 202).

*Length* of body 12 mm.; length with wings 16 mm.; post. fem. 11.5 mm.; elytra 10 mm.

### Genus GRYLLITARA Chopard

1931. *Gryllitara* Chopard, *Bull. Raffles Mus.*, No. 6, 138.

*Type*.—*Gryllitara pendleburyi* Chopard.

*Range*.—Malaya.

This genus has the general appearance of a true Gryllid, with a round, relatively big head and a pronotum not at all narrowing in front. On the other hand, the elytral venation is very similar to that of *Itara*, but with a very short apical field. Anterior tibiae perforated on their external face and presenting only a split on their internal one; posterior tibiae serrulated and armed with four spines on each margin, their apical spurs relatively short.

### 285. *Gryllitara pendleburyi* Chopard

(Fig. 203)

1931. *Gryllitara pendleburyi* Chopard, *Bull. Raffles Mus.*, No. 6, 139, figs. 5, 6.

♂: *Size* medium. *Colouration* testaceous-brown. *Head* rather big, round, with frontal rostrum short, much wider than the first antennal joint; face rufous, shining. Palpi rather long, rufous; 4th joint of the maxillary palpi a little shorter than 3rd, 5th long, very feebly dilated at apex. Antennae slender, rufous. Eyes rounded, feebly protruding; ocelli very small, nearly in a straight line. *Pronotum* transverse, with anterior margin a little concave, posterior margin convex, sides almost parallel; disk feebly convex, rufous; lateral lobes a little darker, with rounded anterior angle. *Abdomen* rufous. *Legs* rather long and slender. Anterior tibiae presenting on their external face a rather large, oval tympanum, and only a long, narrow split on their internal face; second joint of the tarsi depressed; anterior and median metatarsi a little longer than the third joint. Posterior femora darkened at apex, with a yellowish ring before



the darkened part; tibiae rather short, denticulate at base and armed with 4 spines on each margin; no denticles between the spines; external apical spurs short, the median a little longer than the other two; infero-internal spur very short, the other two rather long, the median a little longer than the superior one; metatarsi long, denticulated on both superior margins. *Elytra* extending to the apex of abdomen, testaceous-brown, a little pubescent; stridulatory vein bent at a right angle; mirror large, a little wider than long, divided in the middle by an undulating vein; chords long, feebly curved, the first sending a veinlet to the mirror; 5 oblique veins emerging from a false vein parallel to the stridulating vein, two of them long and three short, the first undulating; apical field very short, finely reticulated; lateral field high, presenting three free veins, the first of which is furcate, and 4 branches of the *Sc.*, the first of which is also furcate. Wings concealed under the elytra. *Genitalia* of male quite similar to those of an *Itara*, with a somewhat denticulated superior piece and rather short inferior pieces ending in a point turned inwards (fig. 203).

*Length* of body 17 mm.; pronot. 3 mm.; post. fem. 12 mm.; post. tib. 8.5 mm.; elytra 12 mm.; post. tib. 8.5 mm.; elytra 12 mm.

*Range*.—MALAYA: Pahang: Fraser's Hill, 3,500 ft. (type, Sel. M.).

### Subfamily PODOSCIRTINAE

This subfamily is composed of a large number of species, differing somewhat in their general shape, but which can be united by the armature of the posterior tibiae; these are serrulated at base and between the spines; external apical spurs very short, subequal in length; internal apical spurs long, the superior one the longest; posterior metatarsi usually short and rather strongly denticulated.

#### *Key to the genera of PODOSCIRTINAE*

- |   |  |                                       |
|---|--|---------------------------------------|
| 1 | Elytra of male with well-developed mirror. . . . .   | 2                                     |
|   | Elytra with similar venation in both sexes. . . . .  | 4                                     |
| 2 | Anterior tibiae strongly dilated and swollen at base. . . . .                                | <i>Mnesibulus</i> Stål, p. 367        |
|   | Anterior tibiae with a weak basal swelling. . . . .  | 3                                     |
| 3 | Disk of pronotum flat with angular edges; general colouration greenish or yellowish. . . . . | <i>Calypotrypus</i> Sauss.,<br>p. 327 |

- Disk of pronotum feebly convex; limit between the disk and the lateral lobes rounded; colouration brownish, never greenish. .. *Madasumma* Walk., p. 341
- 4 General shape very slender; body with parallel sides; ovipositor acute without distinct apical valves. . . . . 5  
General shape more stout; sides of the body more or less convex; ovipositor with well-marked apical valves. . . . . 6
- 5 Elytral veins very regular, longitudinal and parallel. . . . . *Patiscus* Stål, p. 400  
Elytral veins more or less oblique and irregular. . . . . *Euscyrthus* Guér., p. 391  
*Corixogryllus* Bol., p. 374
- 6 Anterior tibiae unperforated. . . . .  
Anterior tibiae perforated at least on one face. . . . . 7
- 7 Anterior tibiae perforated on both faces; fifth joint of the maxillary palpi short and broad. . . . . *Mundeicus* Chop., p. 376  
Anterior tibiae perforated on the internal face only; fifth joint of the maxillary palpi longer. . . . . *Aphonoides* Chop., p. 379

## Genus CALYPTOTRYPUS Saussure

1878. *Calyptotrypus* Saussure, *Mém. Soc. Genève*, 25, 563.

*Type*.—*Platydictylus helvolus* Saussure.

*Range*.—India, Burma, Malaya, China, Malay Archipelago.

General colour greenish or yellowish. Pronotum flattened above with almost carinated edges. Legs moderately long; anterior tibiae perforated with an oval tympanum on each face, the internal one with a swollen margin; posterior tibiae serrulated and armed with 8-9 small spines on each margin. Elytra longer than the abdomen; mirror rounded, divided by an almost straight vein; 5-7 oblique veins. Wings caudate. Ovipositor with apical valves denticulated.

### Key to the species of CALYPTOTRYPUS\*

- 1 Insertion of the lateral lobes of pronotum strongly carinated and presenting a blackish, punctated band. *ornatus* n. sp., p. 340  
Insertion of the lateral lobes of pronotum not so strongly carinated and smooth. 2

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\* *Calyptotrypus pallidus* Walker, the male of which is unknown, is not included in this key.

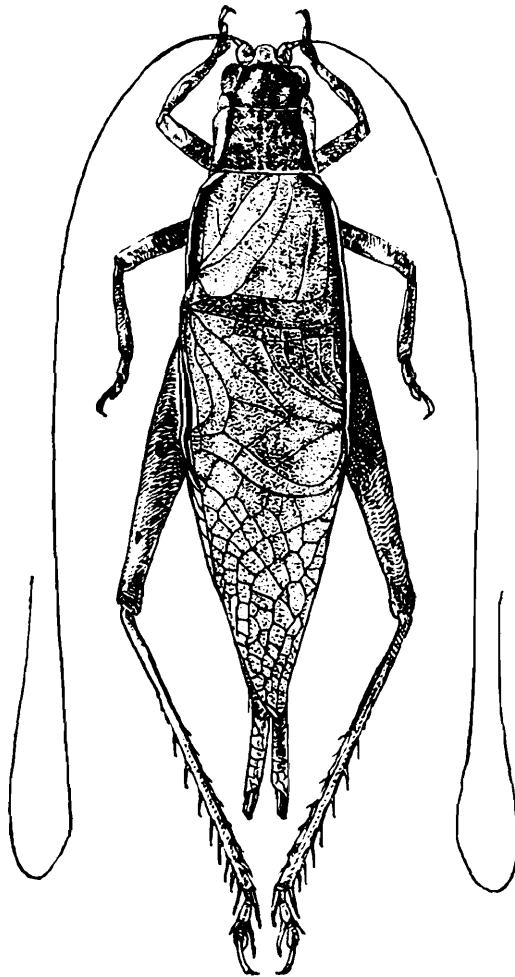
- 2 Size medium (length with wings about 18 mm.); pronotum and elytra more or less spotted with brown; female almost blackish. *maindroni* (Chop.), p. 339
- Size larger (25-43 mm.); colouration more uniformly greenish or yellowish-brown. 3
- 3 Elytra four times as long as broad. 4  
Elytra scarcely three times as long as broad. 5
- 4 Tenth abdominal tergite of the male without processes; pronotum with two blackish spots. *bimaculatus* (Chop.), p. 336
- Tenth abdominal tergite of the male presenting two long cylindrical processes. *furcifer* Chop., p. 338
- 5 Posterior tibiae armed with 5 or 6 small, black spines on each margin. 6  
Posterior tibiae armed with 8-9 longer, yellowish spines on each margin. 7
- 6 Tenth abdominal tergite of the male feebly notched at apex; spines of the posterior tibiae wholly black. *parvispinosus* Chop., p. 334
- Tenth abdominal tergite of the male deeply notched at apex, forming two long lobes; spines of the posterior tibiae black at apex only. *hofmanni* Sauss., p. 335
- 7 Elytra of the male with four long oblique veins. 8  
Elytra of the male with three long oblique veins. 9
- 8 Apical field of the male elytra with a wide reticulation; subgenital plate of the female rather feebly notched at apex; tenth abdominal tergite of the male with feebly projecting angles. *helvolus* (Serv.), p. 329
- Apical field of the male elytra with a closer reticulation; subgenital plate of the female rather deeply and narrowly notched; tenth abdominal tergite of the male with projecting angles. *lobatus* n. sp., p. 331
- 9 Tenth abdominal tergite of the male with posterior margin concave, forming two rounded lobes directed outwards. *bispinosus* n. sp., p. 334
- Tenth tergite of the male without lateral lobes. 10
- 10 Elytral mirror broader than long; cells of the apical field rather small and elongate. *bipunctatus* n. sp., p. 332
- Elytral mirror as long as broad; cells of the apical field large and nearly square. *crumbi* n. sp., p. 333

**286. *Calyptotrypus helvolus* (Serville)**

(Figs. 206-211)

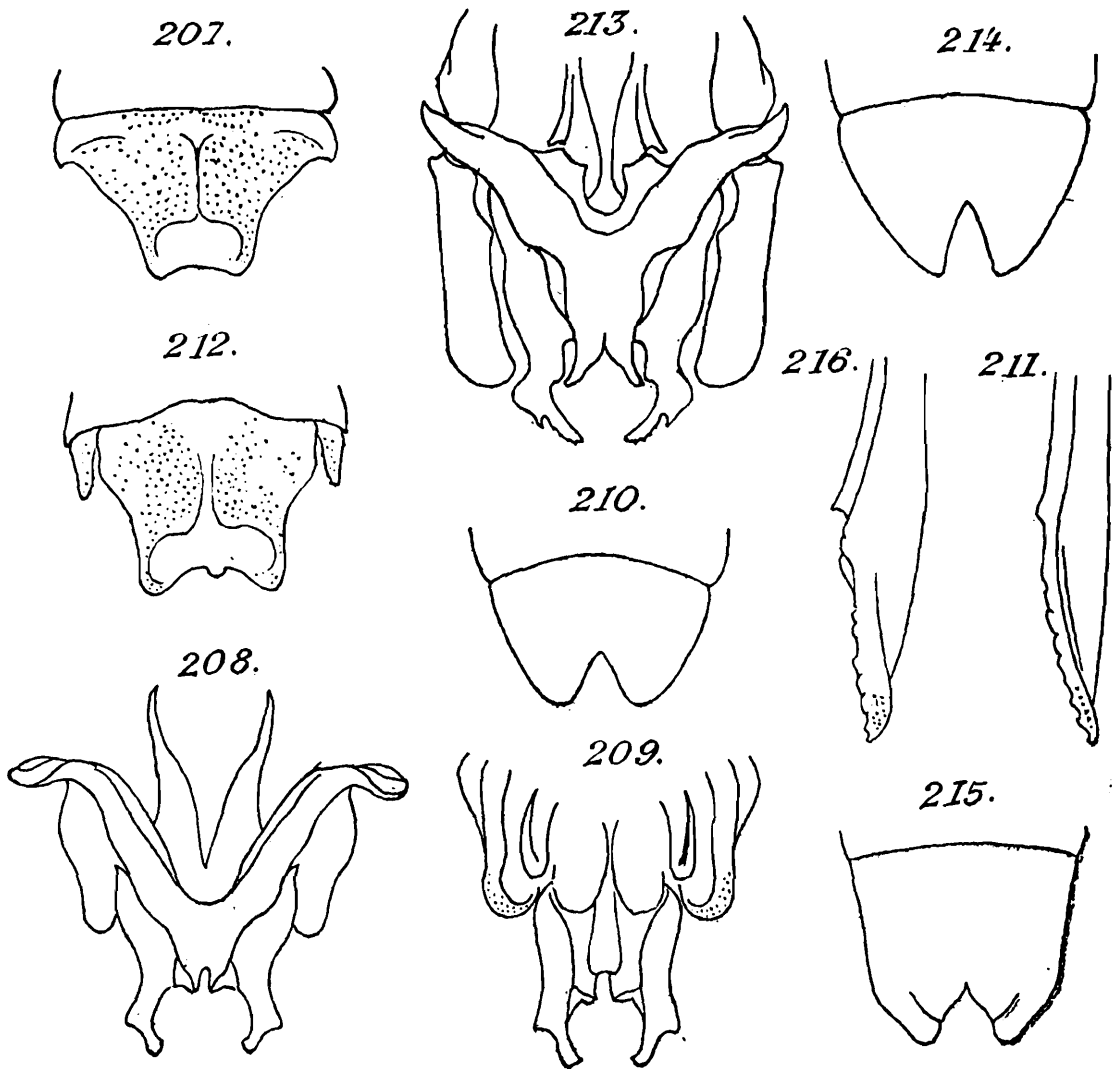
1839. *Platydactylus helvolus* Serville, *Ins. Orth.*, 368.1878. *Calyptotrypus helvolus* Saussure, *Mém. Soc. Genève*, 25, 567, pl. 18 (LXII), figs. 1, 1a. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

*Size* rather large. *Colour* pale testaceous, adorned on the edges of the pronotum and elytra with a black and white or yellow double line. *Head* small, feebly convex above, yellowish; frontal rostrum almost as wide as the first antennal

FIG. 206. *Calyptotrypus helvolus* (Serv.), ♂ ( $\times 2.62$ ).

joint, furrowed above, with projecting, feebly converging margins. Ocelli large. Antennae yellow with small brown rings. *Pronotum* narrowing in front, with sinuated posterior margin, lateral edges carinated, anterior and posterior margins adorned with a few brown spots; lateral lobes yellowish.

Last *abdominal* tergite narrowing at apex which is feebly concave (fig. 207). *Legs* moderately long, yellowish, pubescent. Anterior tibiae perforated on both faces, the internal tympanum partly covered by the swollen anterior margin. Posterior femora yellowish with a few very small brown spots, feebly dilated at base; posterior tibiae armed with 8-9 spines



FIGS. 207 to 216. 207. *Calpytotypus helvolus*, 10th abdominal tergite of the male. 208. *id.*, genitalia. 209. inferior part of same. 210. subgenital plate of the female. 211. extremity of the ovipositor. 212. *Calpytotypus lobatus*, 10th abdominal tergite of the male. 213. *id.*, genitalia. 214. *id.*, subgenital plate of the female. 215. *C. palidus*, subgenital plate of the female. 216. *id.*, extremity of ovipositor.

on each margin; external margin serrulated at base and between the spines, internal margin with basal denticles less numerous and presenting between the spines one denticle only instead of 2 or 3; metatarsi short, armed above with 1 external, 3 internal denticles.

♂: Subgenital plate a little longer than wide, furrowed in the middle, feebly narrowing backwards, with feebly notched apical margin. *Elytra* long, yellowish or very pale brownish, with yellow veins, finely pubescent; mirror rather small, one and a half times as broad as long, with very obtuse anterior angle, internal angle a right angle, posterior part rounded, divided in the middle by an almost straight vein; 5 oblique veins, regularly spaced, converging; anal field occupying nearly a third of the total length, with 5 distant veins and a wide almost square reticulation; lateral field almost transparent; *Sc.* bearing 14 branches. Wings slightly longer than the elytra. *Genitalia* complex, with superior part notched at apex, median pieces rather long, obliquely truncated (figs. 208, 209).

♀: Same general shape and colour as the male; veins of the elytra feebly oblique, very regular, the *Cu.* and *Cup.* bearing 10 branches; transverse veinlets forming square, regular areolae. *Subgenital plate* rather deeply and angularly notched (fig. 210), the lobes being feebly rounded. *Ovipositor* relatively short and thick; apical valves narrow, presenting 7 or 8 regular, rounded small teeth (fig. 211).

*Length* of body 22.5–23 mm.; length with wings 33–34.5 mm.; post. fem. 14–14.5 mm.; elytra 22.5–24.5 mm.; ovipositor 12 mm.

*Range*.—INDIA (Serville's type, P.M.). MALAYA: Selangor: Kuala Lumpur; Bukit Kutu (Sel. M.). Pahang: Sungai Tahan; Lubak Tahang (Sel. M.). Singapore. Johore: Strait (Sel. M., B.M.). MALAY ARCHIPELAGO.

## 287. *Calypotrypus lobatus* n. sp.

(Figs. 212, 213 and 214)

*Holotype*: Malay Peninsula, W. coast: Pulu Jarak (E. Seimund, 8.IV.1932), at light, ♂; *allotype*: same locality, ♀ (Selangor Museum).

♂: A little larger than the preceding, but very similar to it. Apical field of the *elytra* presenting a close reticulation. Tenth *abdominal* tergite presenting two narrow basal lobes, apical margin with a small median lobe (fig. 212). *Genitalia* with longer median pieces notched beneath (fig. 213).

♀: *Subgenital plate* rather deeply and narrowly notched at apex (fig. 214).

*Length* of body ♂ 26 mm., ♀ 27 mm.; length with wings ♂ 34 mm., ♀ 43 mm.; post. fem. ♂ 15 mm., ♀ 16 mm.; elytra ♂ 24 mm., ♀ 29 mm.; ovipositor 15.5 mm.

*Range*.—MALAYA: Pahang: N. Jahar (P.M.); Catchment area; Kedah nr. Jitra (Sel. M.).

## 288. *Calyptotrypus pallidus* (Walker)

(Figs. 215, 216)

1869. *Platydictylus pallidus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 82.

♀: Very close to *helvolus*. Frontal rostrum narrow. *Pronotum* greenish with two yellow lines on the edges; lateral lobes presenting two small brown spots beneath this line, one anteriorly and one posteriorly. *Subgenital plate* narrowing posteriorly, rather deeply notched and presenting two small ridges (fig. 215). *Elytra* presenting 15 regularly spaced veins; reticulation close and rather regular. Wings caudate. *Ovipositor* feebly curved; apical valves long, narrow, with 2 rather strong basal teeth and 5 small rounded ones, external face finely tuberculated (fig. 216).

*Length* of body 18.5 mm.; pronot. 3.7 mm.; elytra 23 mm.; ovipositor 9.5 mm.

*Range*.—EAST PAKISTAN: Sylhet (type, B.M.).

## 289. *Calyptotrypus bipunctatus* n. sp.

(Figs. 217, 218 and 219)

*Holotype*: Malaya: Selangor: Kuala Lumpur (H. M. Pendlebury, 27.X.1923), at light, ♂; *allotype*: same locality, ♀ (Selangor Museum).

♂: Very close to *helvolus*. Maxillary palpi with 5th joint a little shorter. *Pronotum* with posterior margin almost straight, presenting very neat lateral brown and yellow lines and a few brown spots along the anterior and posterior margins; lateral lobes with a rather large brown spot near the posterior angle. Tenth *abdominal* tergite presenting at base a very small lobe on each side; epiproct with two rather small places covered with small spinules (fig. 217); subgenital plate widely rounded. Posterior femora presenting two rather large brown spots on the superior margin. *Elytral* mirror as in *helvolus* with 3 long oblique veins only; the 4th is in the angle of the stridulating vein. *Genitalia* of the same type as *helvolus*, with a long spine beneath and a lobe provided with small teeth on each side (fig. 218).

♀: Quite similar to *helvolus*, a little smaller; maxillary palpi with last joint a little shorter; posterior tibiae with the same brown spots as the male. *Subgenital plate* a little

shorter than in *helvolus*, with a wide apical notch, extending almost to the middle (fig. 219).

*Length* of body ♂ 19 mm., ♀ 20 mm.; length with wings ♂ 28 mm., ♀ 32 mm.; post. fem. ♂ 13 mm., ♀ 13.5 mm.; elytra 20 mm.; ovipositor 11 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur. Singapore (B.M.).

## 290. *Calyptotrypus crumbi* n. sp.

(Figs. 225, 226)

*Holotype*: Burma: Toungoo (A. V. B. Crumb), ♂ (Academy of Natural Sciences, Philadelphia).

*Head* light yellowish-brown above, darkened towards the base of the rostrum, which is very narrow at the apex, grooved above; ocelli big, contiguous. Face and cheeks yellowish; behind each eye is a small yellow line. Antennae and palpi yellowish; 5th joint of the maxillary palpi short, triangular. *Pronotum* a little narrowing in front, with feebly concave anterior margin, posterior one a little sinuated; disk flat, yellowish, more or less darkened laterally; lateral lobes long, yellowish with a narrow yellow band in continuation of the band of the cheeks; their inferior margin convex, insertion on the disk almost sharp. *Abdomen* yellowish, finely pubescent; 10th tergite plain, almost completely covered with spinules; epiproct hollowed, smooth with straight posterior margin; subgenital plate widely rounded backwards. *Legs* of the same colour as the body, pubescent; anterior and median ones rather short; anterior tibiae with rather large, oval, external tympanum; internal tympanum slit-like. Posterior femora rather long, feebly dilated at base; tibiae armed with 6 spines on each margin, denticulated at base and between the spines. *Elytra* long, very light brown, with a narrow dark line at base and along the humeral edge; on this edge it is doubled by a broader yellow band; mirror a little wider than long, almost rounded, divided in the middle by a straight vein; 3 long oblique veins, regularly spaced at base, converging towards the apex, and 3 small ones in the angle of the stridulating vein; apical field long, presenting 5 veins and a wide reticulation formed of nearly square areolae; lateral field pellucid; Sc. bearing 11 branches. Wings rather strongly exceeding the elytra. *Genitalia* with superior part presenting two long plates, denticulated at apex, and two sharp points between them; inferior part rounded with two large basal lobes furnished with a few small spines (figs. 225, 226).



*Length* of body 22 mm.; length with wings 32.5 mm.; pronot. 3.7 mm.; post. fem. 15 mm.; elytra 22.5 mm.

Differs from the preceding species in the shape of the elytral mirror and the genitalia.

## 291. *Calypotrypus bispinosus* n. sp.

(Figs. 220, 221)

*Holotype*: Malaya: Selangor: Kuala Lumpur (H. M. Pendlebury, 20.V.1931), at light, ♂ (Selangor Museum).

Close to the preceding; *head* presenting a rufous drawing formed of fine lines, one behind each eye and a pattern in the shape of a W in the middle; apex of the rostrum reddish. *Pronotum* with posterior margin convex, feebly darkened and presenting a few small brown spots; anterior margin yellow; edges without neat brown band but presenting a reddish, irregular tint. Tenth *abdominal* tergite with a small basal lobe on each side; apical angles projecting outwards, covered with small spines (fig. 220). *Elytral* mirror a little less transverse than in *helvolus*; 3 long, oblique veins along the stridulating vein and a 4th in the angle; apical field with veins much closer than in *helvolus*. Posterior femora without spots. Subgenital plate a little truncated at apex. *Genitalia* with a long spine on each side inferiorly (fig. 221).

*Length* of body 21 mm.; length with wings 29 mm.; post. fem. 13 mm.; elytra 20 mm.

## 292. *Calypotrypus parvispinosus* Chopard

1930. *Calypotrypus parvispinosus* Chopard, *Sarawak Mus. J.*, 4, 34, pl. 7, figs. 66-68. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

♂: *Size* medium. *Colour* yellowish (green in life?). *Head* small, presenting behind each eye a brown band, divided by a small yellow spot; frontal rostrum flat, with elevated margins strongly converging forwards; face yellow. Palpi brown towards the apex; 5th joint of maxillary ones rather large, triangular. Antennae rufous-brown. Eyes rounded; ocelli very small. *Pronotum* somewhat narrowing in front, with humeral edges distinctly angulated; anterior margin feebly concave; posterior margin sinuous; disk flat, yellowish with a black spot in the middle of the anterior and posterior margins; lateral lobes yellowish, spotted with black near the posterior angle and presenting a small black band anteriorly, the extreme inferior margin black. *Abdomen* yellowish; 10th

tergite small, with posterior margin feebly notched and presenting two small elevations near the base; subgenital plate moderately long, rounded at apex. Cerci long, yellow. *Legs* rufous-yellow. Anterior tibiae strongly dilated at base, with rather large external tympanum, nearly rectangular, internal one linear. Posterior femora weakly swollen; tibiae armed with short but rather thick black spines, 5 or 6 in number, on each margin; metatarsus a little shorter than the 3rd joint, armed with 2 external, 1 internal denticles. *Elytra* rather narrow, greenish-yellow, darkened in the anal field, along the humeral edge, and in the apical field; mirror large, as wide as long, rounded posteriorly; diagonal vein short; 7 oblique veins, forming two groups: 3 long ones, emerging near the base of the stridulating vein and 4 short ones from the angle of this vein; apical field large, with 4 veins and a wide and rather regular reticulation; lateral field high; *Sc.* bearing about 15 parallel, somewhat sinuous branches. Wings a little longer than the elytra. *Genitalia* large, formed of two pairs of hooks directed upwards.

♀: *Head* and *pronotum* as in male. Subgenital plate rather long, notched at apex. *Elytra* elongate, pale green; dorsal field with 10 regularly parallel, slightly oblique veins, 3 of which are free, the others emerging from the cubital and its sector; reticulation forming small, regular squares; *Sc.* bearing 12 branches. *Ovipositor* a little curved, with superior apical valves oval, elongate, their surface striated by small tubercles; inferior valves much longer than the superior ones.

*Length* of body 19 mm.; length with wings ♂ 26 mm., ♂ 31 mm.; post. fem. ♂ 9.5 mm., ♀ 10.5 mm.; elytra ♂ 20 mm., ♀ 25 mm.; ovipositor 11.5 mm.

*Range*.—MALAYA: Perak: Batang Padang. Selangor: Bukit Kutu (Sel. M.). SARAWAK (type, S.M.).

### 293. *Calypotrypus hofmanni* Saussure

(Fig. 222)

1878. *Calypotrypus hofmanni* Saussure, *Mém. Soc. Genève*, 25, 569, pl. 18 (LXII), figs. 2, 2a.

Very close to the preceding, presenting the same shape and general colour. *Head* darkened on the occiput. Tenth abdominal tergite of the male very deeply notched, forming two long, nearly conical lobes rounded at apex. Posterior tibiae without denticles on the internal margin, armed with 5 short, slender spines, which are blackish at apex only; external margin armed with 4 short spines in the apical

quarter, with a few small denticles before the spines; last spine quite close to the superior apical spur. *Elytral* venation very similar to *parvispinosus*; apical field with 4 veins and a closer, more regular reticulation. Subgenital plate of the female carinated, deeply and angularly notched. *Genitalia* of male with inferior part considerably produced in two slender processes, curved downwards (fig. 222).

*Length* of body 16–18 mm.; length with wings 24–28 mm.; post. fem. 8.5–10 mm.; elytra ♂ 19.5–20 mm., ♀ 24 mm.; ovipositor 11 mm.

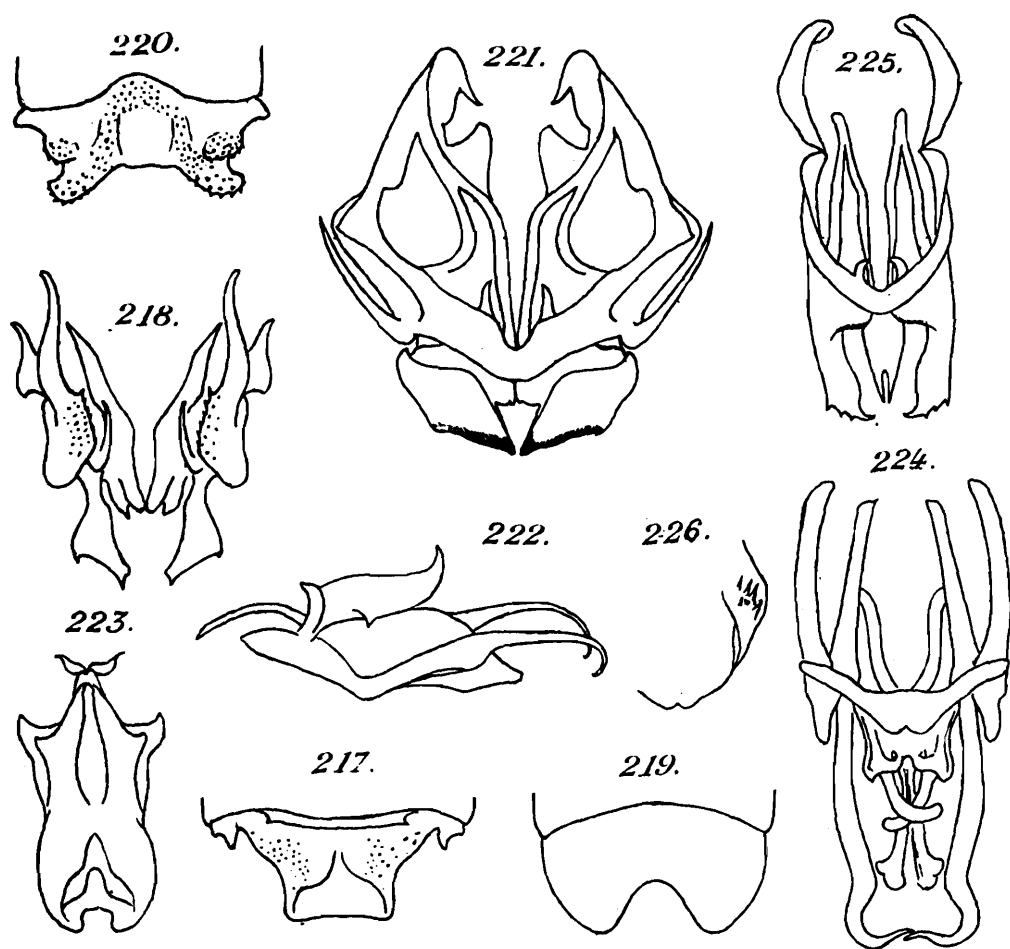
*Range*.—UPPER BURMA: Shan Hills (B.M.). JAVA (type, Stuttgart Museum).

## 294. *Calypotrypus bimaculatus* (Chopard)

1928. *Madasumma bimaculata* Chopard, *Rec. Ind. Mus.*, 30, 32, figs. 49–51.

♂: *Size* medium, rather elongated. *Colouration* testaceous, more or less greenish on the sides. *Head* small, a little flattened; frontal rostrum very narrow, with a rather deep depression, in which the anterior ocellus is located. Face short, yellowish. Palpi pale brownish; 4th joint of maxillary palpi much shorter than 3rd, 5th also rather short, wide, triangular. Antennae brown, rather thick, their bases nearly black. Eyes rather small, rounded. *Pronotum* flat above, the limit of lateral lobes subangular; anterior margin straight, posterior one a little convex; lateral lobes not very high, with inferior margin very feebly ascending anteriorly; disk greenish, with a brown median line and two blackish triangular impressions; lateral lobes also greenish, but with extreme margin brown, the limit between the disk and the lobes forming a somewhat callous yellow band, which is lined with black beneath. *Abdomen* testaceous; epiproct triangular, rounded at apex, black. *Legs* short, pubescent. Anterior tibiae rather strongly swollen, testaceous-brown with a blackish spot on the swollen part, extending to the base, the apex equally blackish; external tympanum nearly square, internal one narrow, almost slit-like. Posterior femora narrow, adorned with 3 black spots above; tibiae armed with 5 external and 6 internal spines; external spurs very short, internal spurs a little longer, especially the superior one; metatarsi short, thick, 3rd joint very long and slender. *Elytra* rather narrow, very long, brownish, with a greenish humeral band; anal field very large, with 3 strong axillary veins; stridulating vein broken at a right angle; mirror rather

small, nearly round; diagonal vein rather short; 6 nearly regular oblique veins, apical field with very distant veins and a very wide reticulation; Sc. with 10 branches. Wings a little longer than the elytra. *Genitalia* rather short, presenting two lateral lobes, notched at apex, and two median pieces ascending between the lobes and ending in a very sharp point.



FIGS. 217 to 226. 217. *Calyptotrypus bipunctatus*, 10th abdominal tergite of the male. 218. *id.*, genitalia, inferior part. 219. *id.*, sub-genital plate of the female. 220. *C. bispinosus*, 10th abdominal tergite of the male. 221. *id.*, genitalia. 222. *C. hofmanni*, genitalia, lateral view. 223. *C. maindroni*, genitalia. 224. *C. ornatus*, genitalia. 225. *C. crumbi*, genitalia. 226. *id.*, apex of lateral part of same.

*Length* of body 17.5 mm.; length with wings 25 mm.; pronot. 3 mm.; post. fem. 10.5 mm.

*Range*.—INDIA: Bhutan: Pedong (type, P.M.).

## 295. *Calypotrypus furcifer* Chopard

1930. *Calypotrypus furcifer* Chopard, *Sarawak Mus. J.*, 4, 35, pl. 7, figs. 61, 69, 70. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

♂: Medium size; rather slender. *Colour* pale testaceous. *Head* short; frontal rostrum very narrow; behind each eye is a yellow line which is continued on the edge of the disk of pronotum; face short, yellowish. Palpi testaceous; 4th joint of the maxillary palpi shorter than the 3rd, 5th rather large, wide, regularly rounded at apex. Antennae testaceous. Eyes rounded; ocelli big, close to one another. *Pronotum* rather strongly narrowing in front; disk flat, presenting three small impresses on the median line and two larger ones laterally; lateral edges keeled; lateral lobes testaceous, with rounded angles, inferior margin somewhat ascending anteriorly. *Abdomen* yellowish; 10th tergite presenting two long cylindrical processes, with a few small teeth at apex; epiproct truncated; subgenital plate triangular, rather long, rounded at apex. *Legs* testaceous. Anterior tibiae strongly dilated at base, with external tympanum nearly square, internal one a narrow oval. Posterior tibiae bearing 8 external, 10 internal small spines, black at apex. *Elytra* elongated, rather narrow, testaceous, a little pubescent; mirror small, rounded, divided a little before the middle by a straight vein; diagonal vein rather short, straight; chords angular, the two external ones united for a certain length; 7 regularly parallel oblique veins; stridulating vein broken at a right angle; anal field large, reticulated; apical field rather long, presenting 4 veins and a rather irregular reticulation; *Sc.* bearing 11 branches. Wings a little longer than the elytra. *Genitalia* presenting two valves in the shape of an acute hook.

♀: A little larger than the male, *green*. Head and *prono-*  
*tum* as in male. *Elytra* rather long and narrow; dorsal field presenting numerous and close, somewhat oblique veins, 3 free ones and 11 branches of the *Cu.* and *Cup.*, the first two of which being a little distant from the following ones; transverse veinlets very numerous, forming a close, often anastomosed reticulation. Wings a little longer than the elytra. *Ovipositor* rather short, a little sinuated, with apical valves narrow, elongate, not very acute, with ridged external face, and presenting 5 or 6 rounded teeth on the inferior margin. Subgenital plate notched at apex.

*Length* of body ♂ 14 mm., ♀ 16 mm.; length with wings ♂ 22.5 mm., ♀ 26 mm.; pronot. 2.2 mm.; post. fem. ♂

9 mm., ♀ 10 mm.; elytra ♂ 15 mm., ♀ 19 mm.; ovipositor 8.5 mm.

*Range*.—MALAYA: Selangor: Bukit Kutu (Sel. M.). BORNEO. SARAWAK (type, S.M.).

## 296. *Calyptotrypus maindroni* (Chopard)

(Fig. 223)

1928. *Madasumma maindroni* Chopard, *Rec. Ind. Mus.*, 30, 31, fig. 48.

♂: *Size* medium. *Colour* yellowish varied with blackish-brown. *Head* a little wider than the pronotum in front; frontal rostrum narrow, with converging margins; face brownish; facial shield very narrow between the antennae, presenting two yellowish callosities, almost in contact in the median line. Palpi testaceous, pubescent; 4th joint of the maxillary palpi much shorter than 3rd, 5th rather large, feebly dilated at apex. Antennae yellowish, with first joint brownish. Eyes large, rounded; ocelli rather large, the anterior one in a very small depression. *Pronotum* markedly widening posteriorly, the insertion of lateral lobes nearly angular; disk slightly raised along the posterior margin, nearly flat in front, rufous, with two lateral brown bands in which are included the two impressed areas which are much more lateral than is usual; lateral lobes yellow. *Abdomen* yellowish; subgenital plate rather long, subacute at apex. *Legs* yellowish. Anterior tibiae subquadrate, very strongly swollen at base, their superior face brown with a small yellowish callosity above the swollen part; external tympanum rather large, oval, internal one very hollow under the swollen margin. Posterior femora feebly swollen, uniformly rufous-yellow; tibiae with 5 spines on each margin. *Elytra* rather wide, translucent in the dorsal field, but presenting brown spots along the stridulating vein, around the mirror, on the chords and along the humeral edge; mirror large, nearly square, divided in the middle; chords almost angular; diagonal vein short, sending a branch to the first oblique vein; veins of the anal field very strong, this field widely reticulated; 6 oblique veins, 2 of which are long and somewhat irregular, the others shorter and parallel; apical field short and reticulated in large areas; lateral field yellow; *Sc.* bearing 8 branches. Wings a little longer than the elytra. *Genitalia* very short, truncated at apex (fig. 223).

♀: *Head*, *pronotum* and *legs* as in the male. Subgenital plate transverse, rather strongly notched at apex, with

widely rounded lobes. *Elytra* blackish, with a yellow spot at base formed by the veins; lateral field almost transparent with yellow veins; dorsal field finely pubescent; cubital vein with 5 branches; reticulation formed of rather regular small cells; *Sc.* bearing 6 branches. Wings a little longer than the elytra. *Ovipositor* rather short and strong; apical valves somewhat elongate, rounded at apex, with external face tuberculate.

*Length* of body ♂ 13 mm., ♀ 14.5 mm.; length with wings ♂ 18.5 mm., ♀ 23 mm.; pronot. ♂ 2 mm., ♀ 2.5 mm.; post. fem. 8.5 mm.; elytra ♂ 12.5 mm., ♀ 15.5 mm.; ovipositor 7.5 mm.

*Range*.—INDIA: Kerala: Malabar Coast; Mahé (type, P.M.). Mysore: Coorg. Uttar Pradesh: Fraserspet (P.M.).

### 297. *Calyptotrypus ornatus* n. sp.

(Fig. 224)

*Holotype*: Malaya: Kalumhang (N. C. E. Miller, 19.IV 1939), ♂ (British Museum).

*Head* a little flattened above, yellowish with a broad blackish band behind each eye; frontal rostrum narrow with black margins; face and cheeks, yellow. Antennae rather thick, brown. Palpi short, yellow with a few brown spots; 4th joint of the maxillary palpi much shorter than 3rd and 5th, the latter triangular with apical margin a little convex. *Pronotum* slightly narrowing in front, with anterior margin feebly concave, posterior margin sinuous; disk flat, yellow with a narrow, blackish humeral band and two small spots of the same colour in the middle of the anterior and posterior margins; humeral edges strongly angulated and a little rugose; lateral lobes yellow, with inferior margin convex. *Abdomen* yellowish; 10th tergite with projecting angles; subgenital plate very slightly notched at apex. *Legs* yellowish. Anterior tibiae short, strong, dilated at base, with the external tympanum small, oval; internal tympanum in the shape of a slit, with strongly swollen margins. Posterior tibiae armed with 4 short and thick, yellow external spines; 4 stronger, brown internal spines; margins smooth with one denticle only on each side, before the first spine; apical spurs short, the internal a little longer than the external ones, chiefly the median. *Elytra* translucent with yellow base, presenting a large brown spot in the anal field, another one on the chords and two on the anterior and posterior parts of the mirror; apical field whitish; mirror as broad as long, divided in the

middle by an almost straight vein; diagonal vein and chords rather short; 3 long oblique veins, straight, parallel and very regularly spaced and 4 shorter ones in the angle of the stri-  
 dulating vein; apical field long, with 5 weak veins and a very  
 regular reticulation; lateral field pale yellow, translucent; *Sc.*  
 bearing 12 very regularly spaced branches. Wings slightly  
 exceeding the elytra in length. *Genitalia* very long, with  
 superior part ending in a long, undulated point (fig. 224).

*Length* of body 18 mm.; length with wings 27.5 mm.;  
 pronot. 3.5 mm.; post. fem. 10 mm.; elytra 22 mm.

### Genus MADASUMMA Walker

1869. *Madasumma* Walker, *Cat. Derm. Salt. Br. M.*, 1, 64.

1878. *Calypotrypus* Saussure, *Mém. Soc. Genève*, 25, 563 (part).

*Type*.—*Madasumma ventralis* Walker.

*Range*.—Madagascar, S. Asia, Philippine Islands, Australia.

The species of the genus *Madasumma* are very close to  
*Calypotrypus*; they differ only in the shape of the pronotum  
 with more rounded edges and in the colouration which is never  
 greenish but brownish, more or less varied with brown, or  
 rather dark brown. These species are numerous and rather  
 difficult to distinguish. In the male sex, the genitalia, which  
 have been figured in most of the species, afford very good  
 specific characters and it is safe to prepare and examine them  
 as a confirmation of the determination. The females are  
 unknown in several species and often rather badly defined;  
 the elytral venation differs somewhat in the different species  
 but these differences are rather difficult to appreciate without  
 material for comparison. The apex of the ovipositor gives  
 better characters but it has seldom been sufficiently des-  
 cribed and figured.

#### *Key to the species of MADASUMMA (males)*<sup>1</sup>

- |   |   |  |
|---|---|--|
| 1 | Elytra presenting two very conspic-<br>uous whitish spots. . . . .                            | 2                                      |
|   | Elytra without very conspicuous white<br>spots. . . . .                                       | 10                                     |
| 2 | Wings scarcely exceeding the elytra;<br>posterior femora with a brown longi-<br>tudinal band. | <i>marginipennis</i> (Guér.)<br>p. 345 |
|   | Wings neatly longer than the elytra;<br>posterior femora without longitudinal<br>brown band.  | 3                                      |

<sup>1</sup> *Madasumma parcevenosa*, the male of which is unknown, is  
 not included in this key.



- |    |  |    |
|----|--|----|
| 3  | Mirror about one and a third times as long as wide. . . . .  | 4  |
|    | Mirror scarcely longer than wide. . . . .  | 9  |
| 4  | Smaller (length of body 14.5-15.5 mm.); long oblique veins emerging from the same points. . . . .                  | 5  |
|    | Larger (17-22 mm.); long oblique veins separated at their origin. . . . .  | 7  |
| 5  | General colouration rufous; elytra with two large whitish spots. . . . .   |    |
|    | <i>albomaculata</i> nom. nov., p. 350  |    |
|    | General colouration dark brown; elytra with rather feebly marked whitish spots . . . . .                           | 6  |
| 6  | Elytra with several feebly marked whitish spots; apical field with a broad, rather irregular reticulation. . . . . |    |
|    | <i>obscuripennis</i> n. sp., p. 350  |    |
|    | Elytra with two whitish spots; apical field with a reticulation formed of long, regular cells. . . . .             |    |
|    | <i>melanonotum</i> n. sp., p. 352  |    |
| 7  | Reticulation of the apical field of elytra very regular and rather wide. . . . .                                   | 8  |
|    | Reticulation of the apical field of elytra closer. . . . .   |    |
|    | <i>similis</i> n. sp., p. 348  |    |
| 8  | Two long and five short oblique veins. . . . .   |    |
|    | <i>saussureana</i> nom. nov., p. 343   |    |
|    | Two long and three short oblique veins. . . . .  |    |
|    | <i>soror</i> n. sp., p. 346  |    |
| 9  | Elytra with pure white spots. . . . .  |    |
|    | <i>albonotata</i> Chop., p. 347  |    |
|    | Elytra with yellowish-white spots. . . . .   |    |
|    | <i>greeni</i> Chop., p. 346  |    |
| 10 | Large species (41 mm.), of a uniform, dark brown colouration. . . . .  |    |
|    | <i>willemsei</i> Chop., p. 365   |    |
|    | Smaller species, of a lighter and less uniform colouration. . . . .  | 11 |
| 11 | Elytral mirror longer than broad. . . . .  | 12 |
|    | Elytral mirror almost as long as broad. . . . .  | 20 |
| 12 | Face wholly black, shining; general shape rather narrow. . . . .   |    |
|    | <i>nigrifrons</i> Chop., p. 357  |    |
|    | Face yellowish or brownish. . . . .  | 13 |
| 13 | Femora and tibiae varied with brown and yellowish; elytra spotted with brown . . . . .                             | 14 |
|    | Colouration more uniform. . . . .  | 15 |
| 14 | General shape moderately elongate and narrow. . . . .  |    |
|    | <i>varipennis</i> (Walk.), p. 359  |    |
|    | General shape very long and narrow. . . . .  |    |
|    | <i>quadrata</i> (Haan.), p. 363  |    |
| 15 | Rather large species (length with wings 34 mm.); elytra with feebly visible white spots. . . . .                   | 16 |
|    | Smaller (27-28 mm.); elytra brownish. . . . .  | 17 |
| 16 | Two long oblique veins; genitalia with hooks directed downwards (Malaya). . . . .                                  |    |
|    | <i>karnyi</i> Chop., p. 356  |    |
|    | Three long oblique veins; genitalia without hooks. . . . .   |    |
|    | <i>valida</i> Chop., p. 353  |    |

- |    |   |                                     |
|----|---|-------------------------------------|
| 17 | Mirror narrowing posteriorly.   | 18                                  |
|    | Mirror as wide behind as in front. . .  | 19                                  |
| 18 | Ocelli large; dividing vein of the mirror undulated. . . . .  | <i>fletcheri</i> Chop., p. 356      |
|    | Ocelli very small; dividing vein of the mirror nearly straight. . . . .                                   | <i>assamensis</i> n. sp., p. 361    |
| 19 | Elytra presenting a lateral yellow band; ocelli small; genitalia with a very long median process. . . . . | <i>gravelyi</i> Chop., p. 354       |
|    | No lateral yellow band on the elytra; ocelli big; genitalia without a very long process. . . . .          | <i>plana</i> (Walk.), p. 360        |
| 20 | Larger (length of body 25 mm.); 10th abdominal tergite widely and deeply notched. . . . .                 | <i>darjilingensis</i> Chop., p. 355 |
|    | Smaller (15 mm.); 10th abdominal tergite without special differentiation. . . . .                         | <i>ventralis</i> (Walk.), p. 361    |

## 298. *Madasumma saussureana* nom. nov.

(Figs. 227, 228 and 229)

1878. *Calypotrypus marginipennis* Saussure, *Mém. Soc. Genève*, 25, 583 (non Guérin).  
 1925. *Madasumma marginipennis* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 533, figs. 27-31. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 76. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

♂: Body shape rather narrow. *Colour* testaceous with two very conspicuous white spots on the elytra. *Head* with two brown bands above, pubescent; frontal rostrum as wide as the first antennal joint, brown, presenting a smooth furrow between the ocellus and the apex; face yellow; cheeks yellow with a few small brown spots. Eyes feebly projecting; ocelli rather big, surrounded with brown. Antennae yellow with a few light brown rings. Palpi yellowish; 5th joint of the maxillary palpi rather strongly widening at apex which is obliquely truncated. *Pronotum* feebly narrowing in front, very pubescent; posterior margin sinuated; disk feebly convex, brown on the sides; lateral lobes a little longer than deep, spotted with brown, with straight inferior margin, rounded angles. *Abdomen* light brown above, yellowish beneath; subgenital plate strongly narrowing towards the apex, presenting a median brown band. Cerci yellow. *Legs* yellowish, feebly spotted with light brown, very pubescent. Anterior tibiae presenting an oval external tympanum, the internal one with slightly dilated anterior margin; metatarsi very short. Posterior femora rather strongly dilated, yellowish with a few small black spots along the inferior margins; posterior tibiae yellow with a small brown

spot near the base, presenting 5 spines on each margin, denticulated at base and between the spines; supero-internal apical spur rather long; metatarsi very short, armed with two denticles on each superior margin and two very long, slightly unequal apical spurs. *Elytra* very light brown, translucent, darkened at base with a white humeral band and two callous spots of the same colour, one on the external angle of the mirror, the other near its posterior margin;

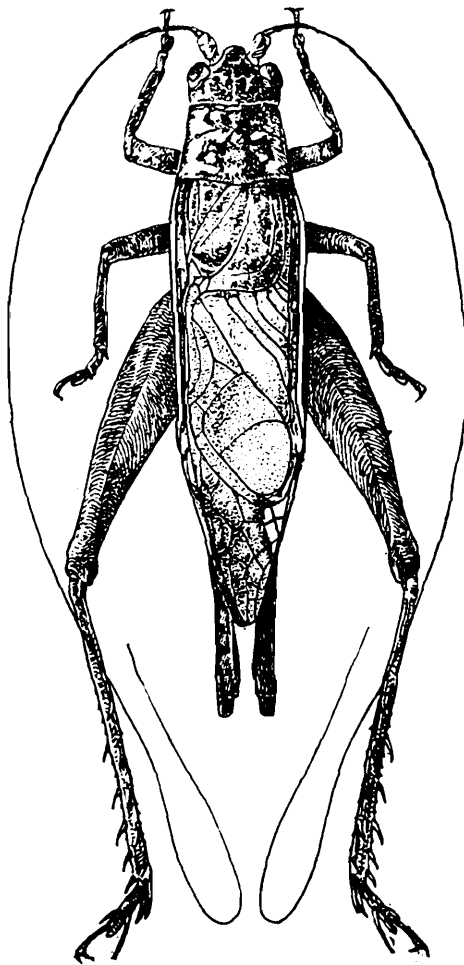


FIG. 227. *Madasumma saussureana* nom. nov., ♂ ( $\times 3.0$ ).

mirror one and a third times as long as broad, feebly narrowing posteriorly; anterior angle a little obtuse, posterior margin rounded; 2 long, sinuated oblique veins and 5 short ones in the angle of the stridulating vein; apical field presenting 4 veins and a reticulation formed of large, regular cells; lateral field translucent; *Sc.* bearing 9 branches. Wings a little longer than the elytra. *Genitalia* intricate, presenting a median point and two denticulated lateral projections (fig. 228).

♀: Darker than the male; superior part of the *head* and *pronotum* almost wholly brown. *Elytra* finely pubescent, brown with a yellowish humeral band; veins of the dorsal field rather remote at base, converging towards the apex; transverse veinlets forming two rows of irregular cells; lateral field translucent with a few small brown spots; *Sc.* with 6 branches. Subgenital plate with a wide and deep notch and rounded lobes. *Ovipositor* long and slender; apical valves long and narrow, finely tuberculated, presenting two teeth, a large and a small, on the external face, and 5 teeth along the inferior margin (fig. 229).

*Length* of body 16–17 mm.; length with wings 22–24.5 mm.; pronot. 3.2–3.4 mm.; post. fem. 12–12.5 mm.; elytra 16–17 mm.; ovipositor 15 mm.

*Range*.—CEYLON: numerous localities.

## 299. *Madasumma marginipennis* (Guérin)

(Figs. 230, 231)

1844. *Platydictylus marginipennis* Guérin, *Icon. R. anim., Ins.*, 330.

1900. *Calypotrypus marmoratus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 805.

Close to the preceding with which it has been confused, but somewhat stouter, with shorter wings. *Abdomen* brown above. *Legs*: Posterior femora with a narrow longitudinal brown band in the middle of the external face and a few small points of the same colour along the inferior margins. Posterior tibiae armed with 5 external, 6 internal spines; external apical spurs very short, internal ones short and thick, the superior scarcely twice as long as the median one; posterior metatarsi very short, armed with two denticles on each margin and two long, equal apical spurs.

♂: *Elytra* extending only slightly beyond the apex of abdomen; apical field short, presenting 3 veins and a reticulation formed of narrow, long cells. *Genitalia* of the same type as *saussureana* (fig. 230).

♀: *Elytra* extending scarcely to the apex of abdomen, with a reticulation very irregular towards the apex; transverse veinlets of the lateral field thickened, yellow. Wings just as long as the elytra. Subgenital plate feebly and widely notched at apex, with rather angulate lobes. *Ovipositor* with apical valves a little widened, somewhat rounded at apex, presenting two teeth before the apex and 3 inferior, rounded teeth (fig. 231).

*Length* of body 17–18 mm.; length with wings ♂ 20 mm., ♀ 18 mm.; pronot. 3.2–3.5 mm.; post. fem. 11.5 mm.; elytra ♂ 15 mm., ♀ 11.5 mm.; ovipositor 17 mm.

*Range*.—INDIA: Madras: Pondicherry (type); Madura; Kodaikanal (P.M.).

### 300. *Madasumma soror* n. sp.

(Fig. 232)

*Holotype*: Bombay, Matheran (Biro, 1902), ♂ (Paris Museum).

Very close to *saussureana* and difficult to recognize without examination of the genitalia. *Head* with three wide dark brown bands above; *pronotum* with dark bands strongly marked. *Elytra* with several dark spots in the anal field, between the chords and behind the mirror, which is a little narrower than in *saussureana*; diagonal vein little shorter; 3 short oblique veins instead of 5; apical field a little longer; *Sc.* with 11 branches. *Genitalia* of the same type as those of *saussureana* with wider lateral parts (fig. 232).

*Length* of body 18 mm.; length with wings 26 mm.; post. fem. 13 mm.; elytra 18.5 mm.

### 301. *Madasumma greeni* Chopard

1925. *Madasumma greeni* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 533, figs. 27b, 29, 30. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 76. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

♂: *Colouration* testaceous-brown, with yellow spots along the elytral edge. *Head* small, round; occiput adorned with two small brown stripes; ocelli rather big and close together; face yellow. *Pronotum* slightly narrowing in front; disk a little flattened, mottled with brown; lateral lobes of the same colour as the disk, with inferior margin feebly convex. *Abdomen* yellowish. *Legs* rufous, mottled with brown. Posterior tibiae armed with 5 spines on each margin. *Elytra* rather wide, slightly pubescent, testaceous-brown with a few small yellow spots along the humeral edge and a larger one behind the mirror; this one is as broad as long; diagonal vein a little curved; first chord united to the mirror by two veinlets; 7 oblique veins, 3 of which are long, parallel, 2 very much curved and 2 almost straight; apical field presenting 4 discoidal sectors and a wide reticulation; *Sc.* bearing 15 parallel close branches. Wings extending a little beyond the apex of

elytra. *Genitalia* very plain, with superior part narrowing and notched at apex.

♀: *Head*, *pronotum* and *legs* as in the male. Subgenital plate rather large, notched at apex. *Elytra* testaceous, with a few yellow spots on the edge, rather broad, pubescent; disk presenting 8 veins, of which the four basal ones only are very distinct, the others partly lost in a wide irregular reticulation. *Ovipositor* long, straight, its apical valves narrow, with shagreened surface, the granulations forming undulated stripes; inferior margin of the superior valves presenting a few rounded teeth and a big ridge near the apex.

*Length* of body 18.5 mm.; length with wings ♂ 26.5 mm., ♀ 29 mm.; pronot. 3.8 mm.; post. fem. ♂ 12.5 mm., ♀ 14.5 mm.; elytra ♂ 18 mm., ♀ 20.5 mm.; ovipositor 19 mm.

Close to *M. saussureana*, but the elytra are wider, with *Sc.* vein bearing more branches, elytral mirror as wide as long; in the female, the veins are less distinct and the reticulation more irregular. The ovipositor is longer with apical valves not so strongly denticulated. *Genitalia* of both species quite different.

*Range*.—CEYLON: Kandy (type, B.M.); Matale; Blahara; Rakwana (Col. M.).

### 302. *Madasumma albonotata* Chopard

1936. *Madasumma albonotata* Chopard, *Ceyl. J. Sc.*, (B) 20, 76, fig. 18. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 560.

Close to the preceding. *Colour* testaceous with very neat white spots on the elytra. *Head* small, rufous; frontal rostrum a little narrower than the first antennal joint, flat above with feebly converging, keeled margins; ocelli very close, the lateral ones rather large, oval, the anterior one small, at base of the rostrum; face yellowish. Palpi yellow; 4th joint of the maxillary palpi shorter than 3rd, 5th rather long, widened and obliquely truncated at apex, presenting a brown ring about the apical third. Antennae rufo-testaceous. *Pronotum* a little narrowing in front, with straight anterior margin, posterior one feebly sinuous; disk rufous-brown, feebly convex, with anterior and posterior margins yellowish, marked with small brown spots; lateral lobes wholly yellowish, with widely rounded anterior angle. *Abdomen* brownish above, yellowish beneath; 10th tergite yellow, truncated at apex and presenting two small tubercles in the middle. *Legs* yellowish, pubescent. Posterior femora feebly dilated

at base; tibiae armed with 6 spines on each margin, the internal longer than the external ones and a little hooked at apex. *Elytra* long but rather wide, presenting three large spots of a very pure white, one on the shoulder, a large one occupying all the posterior part of the anal field, one behind the mirror in the external angle; besides these there are two smaller spots along the edge; mirror nearly as broad as long, regularly rounded posteriorly, a little angulate forwards; chords short, strongly curved, slightly diverging; diagonal vein short, a little broken near the base; 6 oblique veins, of which 2 are long, parallel, one coming from the middle of the stridulating vein, the others in the angle; apical field long, presenting 4 sectors and reticulated into wide, nearly square areolae; lateral field almost transparent, *Sc.* bearing numerous branches. Wings a little longer than the elytra. *Genitalia* of the same type as *greeni* but less deeply notched at apex.

*Length* of body 12.5 mm.; length with wings 22 mm.; post. fem. 11 mm.; elytra 15 mm.

Very close to the preceding but the spots of the elytra are of a pure white, the frontal rostrum a little narrower, pronotum more strongly narrowing in front, legs not so pubescent with more fusiform anterior tibiae.

*Range*.—CEYLON: Kitulgala (type, Col. M.).

### 303. *Madasumma similis* n. sp.

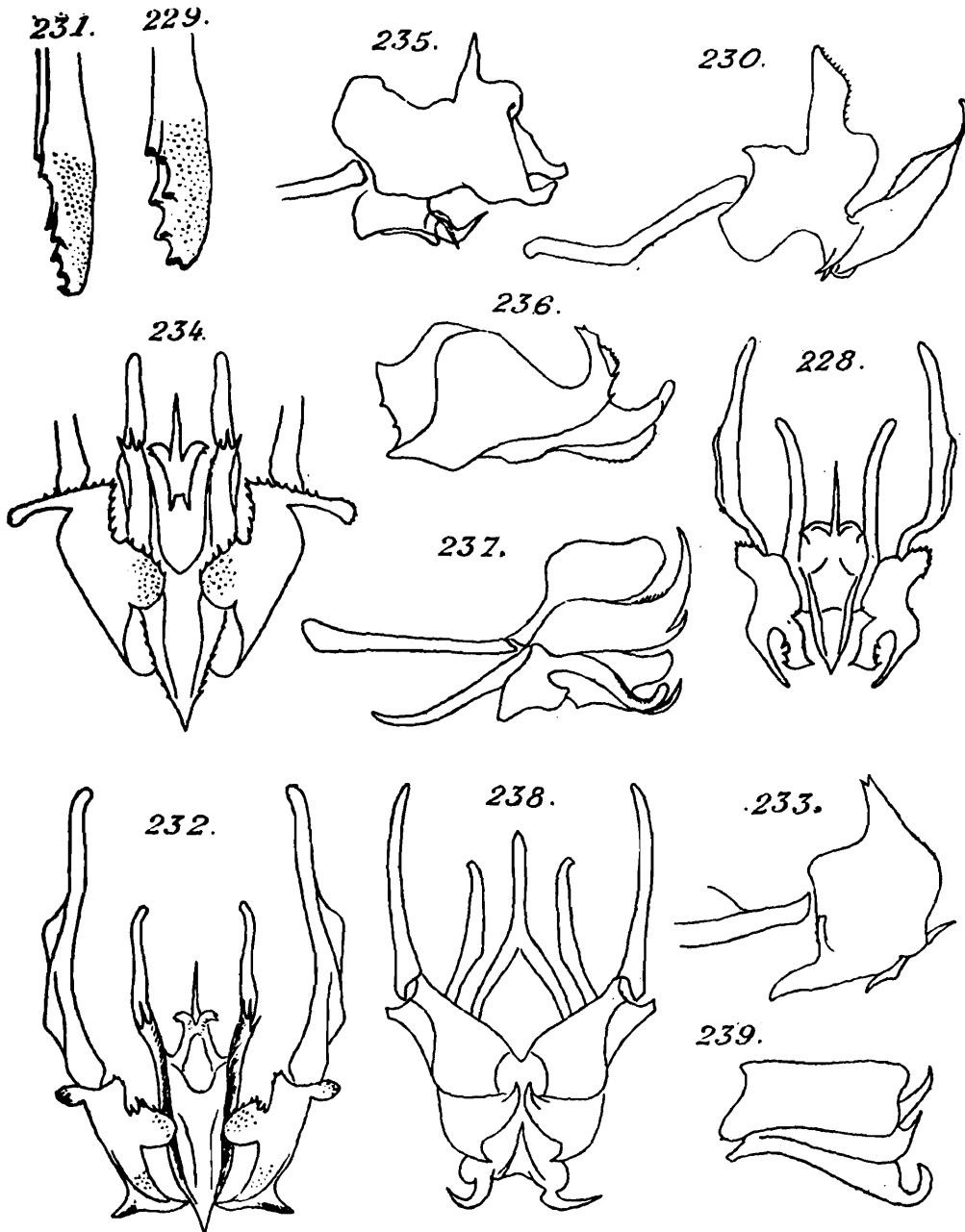
(Figs. 233, 234)

*Holotype*: Madras (F. H. Gravely, X.1926), ♂ (Dehra Dun Forest Res. Inst.).

Very close to *M. saussureana*, from which it differs by a few small features and chiefly by the shape of the genitalia. Frontal rostrum a little narrower at apex; occiput without longitudinal brown bands but presenting a few scarce spots; on the *pronotum* the ornamentation is also less visible than in *saussureana*, the longitudinal brown bands being only feebly distinct; colouration and nervation of the *elytra* nearly the same, the reticulation of the apical field being only a little closer. Anterior and median legs slightly shorter. *Genitalia* composed of a large transverse plate, ending in an erected bifid point; laterally the sides of this plate are inflected, wrapping a small acute odd piece; lateral processes long and slender (figs. 233, 234).

*Length* of body 22 mm.; length with wings 27.5 mm.; post. fem. 12.5 mm.; elytra 16.5 mm.

*Range*.—INDIA: Bombay: Salsette Islands (B.M.). Mysore: Nedungadu (Phil. M.). Madras: Madras (type); Trichinopoly (P.M.); Salem (Phil. M.).



FIGS. 228 to 239. 228. *Madasumma saussureana*, genitalia, inferior part. 229. *id.*, extremity of ovipositor. 230. *M. marginipennis*, genitalia, lateral view. 231. *id.*, extremity of ovipositor. 232. *M. soror*, genitalia, inferior part. 233. *M. similis*, genitalia, lateral view. 234. *id.*, inferior part. 235. *M. obscuripennis*, genitalia, lateral view. 236. *M. melanonotum*, genitalia, lateral view. 237. *M. darjilingensis*, genitalia, lateral view. 238. *M. plana*, genitalia. 239. *id.*, lateral view.



**304. *Madasumma albomaculata* nom. nov.**

1931. *Madasumma bimaculata* Chopard, *Bull. Raffles Mus.*, No. 6, 142, figs. 7, 8 (*non bimaculata* Chopard, 1928).

*Size* rather small. *Colouration* rufous with two conspicuous whitish spots on the elytra. *Head* flat, very pubescent; frontal rostrum as broad as the first antennal joint, with parallel margins; face rufous; ocelli large, the anterior one in the middle of the rostrum. *Pronotum* feebly widening in front; disk feebly convex, rufous, very pubescent; lateral lobes concolorous, with inferior margin slightly ascending posteriorly. *Abdomen* rufous. *Legs* rather short, rufous, very pubescent. Posterior femora rather strongly dilated; tibiae pubescent, armed with 5 spines on each margin; metatarsi short and thick, armed with 3 external, 1 internal denticles. *Elytra* rufous-brown, finely pubescent, presenting two large white spots, one near the anal knot, the other at the apex of the mirror; there is a smaller spot of the same colour at the external angle of the mirror; this one is rather large, longer than broad, divided above the middle by a straight vein; chords short, bowed, sending two branches to the mirror; 5 oblique veins of which two long ones emerge from the same point, 3 short ones and one very small in the angle of the stridulating vein; apical field with 4 longitudinal veins and a wide reticulation; lateral field showing in its superior part small, thickened yellow veins; *Sc.* bearing 5 branches. Wings caudate. *Genitalia* formed of a large piece with four long erect teeth and finishing laterally by an horizontal tigella.

*Length* of body 15.5 mm.; length with wings 21 mm.; post. fem. 10.5 mm.; elytra 14 mm.

This species is distinguishable from the others of the group by its small size, the disposition of the elytral veins and the genitalia.

*Range*.—MALAYA: Selangor: Kuala Lumpur (type, Sel. M.).

**305. *Madasumma obscuripennis* n. sp.**

(Fig. 235)

*Holotype*: Malaya: Selangor, Bukit Kutu (H. M. Pendlebury, 16.III.1931), ♂ (Selangor Museum).

*Size medium.* General *colouration* rather dark with a lateral rufous band and small white spots on the elytra. *Head* small, nearly black above; face and cheeks rufous-yellow; frontal rostrum narrow. Antennae rufous with two first joints brown and a few sparse brownish rings. Palpi rather short, brown; 5th joint of maxillary ones relatively short and wide, triangular. Eyes rounded; ocelli rather large, especially the lateral ones. *Pronotum* feebly narrowing in front; disk feebly convex, pubescent, blackish with usual impresses rufous; lateral lobes wholly rufous with inferior margin feebly convex, rounded angles. *Abdomen* brown above, yellowish beneath; epiproct truncated at apex, black, as also is the tenth tergite, with a large yellowish impress in the middle; subgenital plate rather large, very strongly narrowing at apex, ending in a blunt point. *Legs* rufous-brown, spotted with blackish. Anterior tibiae feebly widened at base, with almost rectangular external tympanum; internal one in the shape of a wide slit, the membrane inserted in the bottom of a depression. Posterior femora rather thick, presenting a large brown spot on the external face; tibiae blackish-brown, very pubescent, armed with 6 external, 5 internal slender, yellowish spines; apical spurs rather short, yellowish; metatarsi short, blackish-brown, armed with two long apical spurs, 2 denticles on the external margin, one only on the internal margin. *Elytra* rather narrow, very dark brown, with lateral field rufous and a few whitish, feebly marked spots on the angle of the mirror and on the chords; mirror about one and a quarter times as long as broad, rounded and feebly narrowing posteriorly, with anterior angle a right angle, divided before the middle by a feebly undulating vein; diagonal vein rather short, a little curved; chords short, parallel, strongly curved, the first one united to the mirror by two rather long veinlets; 5 oblique veins, the two first long, slightly diverging, 3rd short, strongly curved, in the angle of the stridulating vein, and two very small ones; apical field rather long, with 6 sectors and a broad, rather irregular reticulation; *Sc.* bearing 7 branches. Wings brown, rather strongly exceeding the elytra. *Genitalia* presenting in the middle a sharp point (fig. 235).

*Length* of body 14.5 mm.; length with wings 21.5 mm.; post. fem. 9 mm.; elytra 14.5 mm.

This species differs from the preceding ones by its darker colouration and its rather short legs.

*Range*.—MALAYA: Selangor: Bukit Kutu (type); Kuala Lumpur (Sel. M.). BORNEO: N. Semblan.

306. **Madasumma melanonotum** n. sp.

(Fig. 236)

*Holotype*: Assam: Ledo Road, 4 m. from Ledo (J. W. H. Rehn, 24.VIII.1944), ♂ (Academy of Natural Sciences, Philadelphia).

*Size* medium, rather elongate. *Colouration*: *Head* black above, finely pubescent; occiput with two short yellow lines; frontal rostrum almost as broad as first antennal joint. Face and cheeks yellowish. Antennae and palpi yellowish. *Pronotum* feebly narrowing in front, with straight anterior and posterior margins; disk feebly convex, blackish; lateral lobes yellow, the separation between this light colour and the black of the disk very neat. *Abdomen* dark brown above, yellowish beneath; epiproct rectangular, with apical margin feebly concave, yellow in the middle with blackish margins; subgenital plate rather long, strongly narrowing from the middle to the apex, which is feebly split. *Legs* yellowish, feebly spotted with brown, very pubescent. Posterior femora presenting 8–9 small brown spots along both inferior margins; posterior tibiae armed with 4 spines on each margin, strongly denticulated between the spines; metatarsi armed with 2 apical spurs, and 2 external and 1 internal denticles on the superior margins. *Elytra* light brown, with two whitish spots in the external angle of the mirror, which is nearly one and a half times as long as broad, narrowing posteriorly, divided by a feebly curved vein; 2 long oblique veins emerging from the same point and 3 short ones in the angle of the stridulating vein; apical field rather long, presenting 5 veins and a reticulation formed of regular, long cells; lateral field transparent; *Sc.* bearing 7 branches. Wings a little longer than the elytra. *Genitalia* with superior part denticulated beneath, with apex notched, inferior median pieces very finely denticulated (fig. 236).

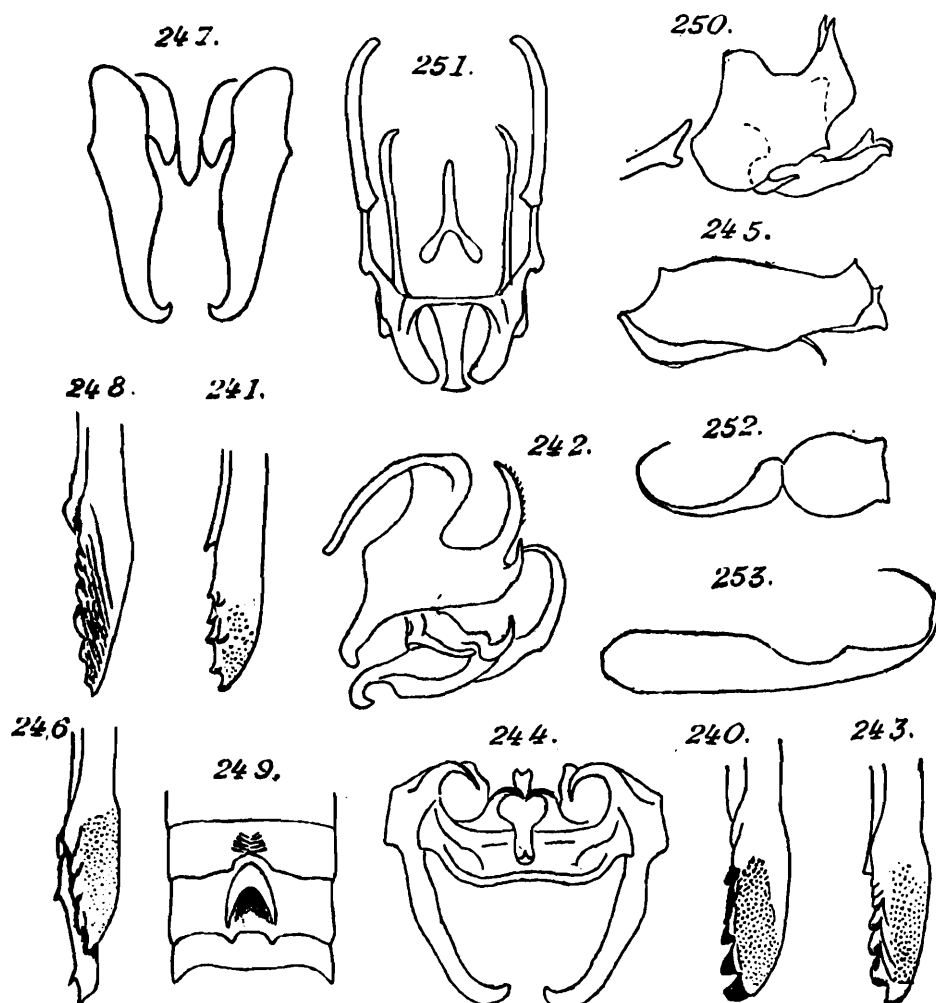
*Length* of body 14.5 mm.; length with wings 21.5 mm.; post. fem. 11 mm.; elytra 13 mm.

Rather close to the preceding; differing in the darker colouration of the pronotum, the narrower mirror, the closer and more regular reticulation of the apical field of the elytra, and the shape of the genitalia.

### 307. *Madasumma valida* Chopard

1936. *Madasumma valida* Chopard, *Ceyl. J. Sc.*, (B) 20, 78, fig. 19. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 561.

♂: Size rather large. Colour of elytra rufo-testaceous with feebly visible whitish spots. Head small, rufous;



FIGS. 240 to 253. 240. *Madasumma darjilingensis*, extremity of ovipositor. 241. *id.* of *M. varipennis*. 242. *M. ventralis*, genitalia, lateral view. 243. *id.*, extremity of ovipositor. 244. *M. assamensis*, genitalia. 245. *M. quadrata*, genitalia, lateral view. 246. *id.*, extremity of ovipositor. 247. *M. willemsei*, genitalia. 248. *id.*, extremity of ovipositor. 249. *Mnesibulus striatipes*, superior part of abdomen. 250. *id.*, genitalia, lateral view. 251. *Corixogryllus abbreviatus*, genitalia. 252. spermatophore of a *Madasumma*. 253. *id.* of an *Aphonoides*.

frontal rostrum almost as wide as the first antennal joint; ocelli disposed as a triangle, equal in size, the anterior one close to the base of the rostrum; face rufous. Antennae

varied with yellow and brown. *Pronotum* almost cylindrical, with straight anterior margin, posterior margin sinuated; disk regularly convex, adorned with a few brown spots in front, the usual impressions lined with brown; lateral lobes lighter than the disk, with rounded inferior margin. *Abdomen* brown above, yellowish beneath; subgenital plate lengthened, very narrow at apex. *Legs* rather long, very pubescent, a little mottled with brown. Anterior tibiae almost quadrangular, scarcely swollen at base. Posterior femora very long and very feebly dilated at base; tibiae armed with 5 spines on each margin. *Elytra* lengthened, testaceous-brown, almost unicolorous, slightly pubescent; anal field long; mirror much longer than broad, divided before the middle by a feebly curved vein; chords regularly curved; diagonal vein long; 7 oblique veins, of which 3 are almost parallel, and 4 shorter ones arise from the angle of the stridulating vein; apical field long, reticulated in large, rectangular areolae. Wings a little longer than the elytra. *Genitalia* rather plain, forming a long bifid piece.

Length of body 25 mm.; length with wings 34 mm.; post. fem. 14.5 mm.; elytra 23 mm.

*Range*.—CEYLON: Labugama (type, Col. M.).

### 308. *Madasumma gravelyi* Chopard

1928. *Madasumma gravelyi* Chopard, *Rec. Ind. Mus.*, 30, 33, figs. 47 and 52.

♂: *Size* rather large, shape elongate. *Colour* testaceous-brown with a yellowish stripe along the elytral edge. *Head* somewhat mottled with brown; frontal rostrum as broad as the first antennal joint, flat, not at all furrowed above; ocelli small; face and palpi yellowish, the 5th joint of maxillary palpi slightly enlarged at apex. *Pronotum* mottled with brown; disk a little darker than the lateral lobes. *Abdomen* yellowish-brown with a median dark longitudinal band beneath. *Cerci* yellowish. Subgenital plate rather long, triangular. *Legs* mottled with brown; anterior tibiae slightly swollen at base, the internal tympanum almost slit-like. *Elytra* long, rather narrow, with mirror longer than broad; diagonal vein short; 5 oblique veins, of which two are long and parallel, and 3 short and curved, forming two widely separated groups; apical field long, with regular venation; *Sc.* bearing 12 branches. Wings a little longer than the elytra. *Genitalia* very large, composed of two large lateral valves, curved upwards, and a very long acute median process, carrying at its base two small hooks directed upwards.

*Length* of body 22 mm.; length with wings 27.5 mm.; elytra 17 mm.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Kalimpong (type, I.M.).

### 309. *Madasumma darjilingensis* Chopard

(Figs. 237, 240)

1928. *Madasumma darjilingensis* Chopard, *Rec. Ind. Mus.*, 30, 34, figs. 53, 54.

♂: *Colouration* rufous-brown, with a yellow stripe on the lateral lobes of pronotum and on the margin of elytra; feebly pubescent. *Head* with frontal rostrum flat, narrowing in front, its margins slightly projecting. Ocelli at base of rostrum. Maxillary palpi testaceous, with 4th joint short, 5th rather long and very little enlarged at apex. Antennae uniformly rufous. *Pronotum* with anterior margin straight, posterior margin very little sinuated; disk almost flat, slightly darkened and mottled with brown; lateral lobes yellowish. *Abdomen* yellowish. Cerci slender, yellowish, a little darkened near the apex. Posterior abdominal region much differentiated; posterior margin of 9th tergite thick and feebly notched, 10th tergite widely notched, forming two triangular lobes; epiproct large, with thick margins, a little notched in the middle, its angles rounded; subgenital plate rather long, narrowing posteriorly but with apex rounded. *Legs* rufous, hairy, a little mottled with brown. Anterior tibiae rather thick, flattened above, a little dilated at base; internal tympanum in the form of a wide slit, external one oval. Posterior tibiae armed with 5 spines on each margin; metatarsus short, thick, armed above with 3 external, 1 internal denticles. *Elytra* rather wide, pubescent, with a yellowish humeral band, but without a spot of the same colour; mirror scarcely longer than broad, divided a little before the middle; chords feebly curved; 7 oblique veins, almost equidistant, 3 of which are almost straight, the other 4 short and curved; apical field rather short, presenting 4 sectors, reticulated in large areolae. Wings a little longer than the elytra. *Genitalia* large, formed of a large, bifid superior piece, dentate at base and directed upwards at apex, and two inferior hooks projecting laterally (fig. 237).

♀: *Ovipositor* with inferior valves presenting three strong teeth (fig. 240).

*Length* of body 25 mm.; pronot. 3.5 mm.; post. fem. 13 mm.; elytra 18.5 mm.

Very close to *M. greeni*; it differs from it in the absence of yellow spots on the elytra, in the mirror being placed a little more posteriorly, so that the diagonal vein and the chords are longer and the apical field shorter; the genitalia are also very different.

*Range*.—INDIA: West Bengal: Darjeeling Dist.; Pashok (type, I.M.); Bhutan (P.M.). Assam: Shillong (P.M.).

### 310. *Madasumma fletcheri* Chopard

1935. *Madasumma fletcheri* Chopard, *Ann. Mag. nat. Hist.*, (10) 16, 294, fig. 4f.

♂: Close to *M. greeni*. *Head* adorned with a brown band between the eyes and a spot of the same colour behind each eye. Ocelli big, the anterior one in the middle of the rostrum, which is a little narrower than the first antennal joint. Face yellowish. *Pronotum* strongly widening posteriorly; disk a little flattened, pubescent, laterally darkened; lateral lobes yellowish. *Abdomen* yellowish-brown; subgenital plate long, narrow with rounded apex. *Legs* testaceous-brown; anterior tibiae with internal tympanum partly covered. *Elytra* finely pubescent, presenting a rather large yellow spot at base; mirror longer than wide, with subacute anterior angle, posterior part rounded but narrowing somewhat, dividing vein undulated; 3 long parallel oblique veins, united at base by a small vein, and 3 or 4 shorter ones; apical field presenting 5 veins and reticulated in large areolae. *Genitalia* presenting a superior piece divided at apex and two hook-like inferior pieces.

*Length* of body 18 mm.; length with wings 20.5 mm.; post. fem. 11 mm.; elytra 18 mm.

This species is remarkable by its mirror narrowing posteriorly and with undulated dividing vein; the genitalia present nearly the same shape as in *M. greeni*, but are denticulated at apex.

*Range*.—UPPER BURMA: Lashio, 3,000 ft. (type, B.M.).

### 311. *Madasumma karnyi* Chopard

1929. *Madasumma karnyi* Chopard, *Bull. Raffles Mus.*, No. 2, 115, figs. 20, 21. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

♂: Rather large and elongate. *Colour* testaceous-brown mottled with brown. *Head* small, rounded, pubescent; frontal rostrum a little narrower than the first antennal joint,

with parallel margins. Antennae brown with a few yellowish rings. Ocelli large, nearly contiguous. *Pronotum* scarcely narrowing in front, with anterior margin straight, mottled with brown; disk rounded, very pubescent; lateral lobes concolorous, with inferior margin slightly ascending anteriorly. *Abdomen* yellowish-brown; subgenital plate rather long, subacute at apex. *Legs* rather long, testaceous-brown, mottled with brown, very pubescent. Anterior tibiae scarcely dilated at base, with external tympanum a little larger than the internal one. Posterior femora long, narrow, presenting a row of small brown spots along the inferior margin and a few larger spots about the middle of the external face; posterior tibiae bearing 5 spines on each margin. *Elytra* rather narrow, yellowish-brown with a small yellow spot at the external angle of the mirror, which is rather large, somewhat lengthened, divided a little above the middle; diagonal vein rather short, straight; 6 oblique veins of which 2 long ones are sinuated, the others short, straight, coming from the angle of the stridulating vein; apical field presenting 3 veins and a very wide reticulation. Wings perceptibly longer than the elytra. *Genitalia* large, presenting a large, superior bifid piece and two pairs of hooks directed downwards.

♀: A little larger than the male; general shape and colouration similar. *Elytra* presenting a few yellow and blackish spots along the edge; dorsal field with 3 free veins uniting before the apex and 8 branches of the cubital vein; these branches are very distant at their base, nearly broken towards the middle, and very close to one another in their apical part, where they are longitudinal; reticulation irregular and close, forming large, elongate cells, disposed on two rows in the basal part. *Ovipositor* long, rather slender, with apical valves small, elongate, shagreened on their external face, armed with 4 inferior and 2 external teeth.

*Length* of body ♂ 23 mm., ♀ 25 mm., length with wings ♂ 34 mm., ♀ 37.5 mm.; post. fem. ♂ 17 mm., ♀ 19.5 mm.; elytra ♂ 22 mm., ♀ 25 mm.; ovipositor 20 mm.

*Range*.—PENINSULAR SIAM: Nakon Sri Tamarat (Sel. M.). MENTAWAI ISLANDS (type, R. M.).

### 312. *Madasumma nigrifrons* Chopard

1931. *Madasumma nigrifrons* Chopard, *Bull. Raffles Mus.*, No. 6, 140, figs. 6a, 6b.

♂: Medium size; shape rather long and narrow. *Colouration* varied with brownish-testaceous and blackish. Occiput



and vertex spotted with small blackish, more or less confluent, maculae; a larger blackish spot is situated behind each eye; frontal rostrum hollowed in the shape of a gutter, with margins somewhat projecting, slightly converging forwards, apex much narrower than the first antennal joint. Face wholly black, shining. Palpi dark brown, short; 5th joint of the maxillary palpi securiform. Antennae brown with small yellowish rings, the first joint large, yellowish. Ocelli small, the anterior one in the middle of the rostrum, the lateral ones forming two small rounded elevations at its base. *Pro-notum* a little narrowing in front, with posterior margin slightly angular in the middle; disk nearly flat, brownish-testaceous with blackish spots, especially numerous along the sides and near the anterior margin; lateral lobes blackish with inferior margin slightly ascending posteriorly. *Abdomen* brownish; subgenital plate narrowing behind the middle and furrowed in its apical part. *Legs* rather short, mottled with blackish. Anterior tibiae sub-quadrangular, rather strongly swollen at base; external tympanum nearly square, internal one narrow, rectangular. Posterior femora short and rather narrow, presenting a large blackish spot about the middle and another at the apex of the same colour; tibiae with three wide blackish bands, their margins faintly denticulated and armed with 4 external, 5 internal short yellowish spines; posterior metatarsi brownish, very pubescent, armed with two apical spines and one in the middle of the external margin, besides the apical spurs. *Elytra* long and narrow, brownish, nearly transparent, with the humeral edge blackish, a little pubescent; the larger part of the anal field is also blackish as well as a spot between the chords and another one in the apical field; mirror longer than wide, narrowing posteriorly; chords feebly arcuate; diagonal vein straight; a supplementary vein is situated between the chords and the mirror, this vein being parallel to the antero-internal margin of the mirror; 6 oblique veins, of which two are long ones, slightly diverging backwards, and a group of 4 short ones, curved and inserted in the angle of the stridulatory vein; apical field presenting 6 longitudinal sectors and reticulated in large, somewhat irregular, areolae; lateral field blackish-brown, with 6 free veins and 10 branches of the *Sc*. Wings distinctly longer than the elytra. *Genitalia* forming a large plain tectiform piece, with apex acutely erected and small hook-like inferior parts.

*Length* of body 17 mm.; length with wings 27 mm.; post. fem. 9 mm.; elytra 19 mm.

The shape of this species is narrower than that of the preceding; it is remarkable by its colouration which is much varied with blackish and, above all, by the supplementary vein shown by the elytral tympanum.

*Range*.—MALAYA: Selangor: Kedah Peak (Sel. M.).

### 313. *Madasumma varipennis* (Walker)

(Fig. 241)

1869. *Platydictylus varipennis* Walker, *Cat. Derm. Salt. Br. M.*, 1, 84 (♂). Chopard, 1925, *Ann. Mag. nat. Hist.*, (9) 15, 533.
1878. *Calypotrypus irroratus* Saussure, *Mém. Soc. Genève*, 577, pl. 18 (LXII), figs. 8h, 8b.
1928. *Madasumma incerta* Chopard, *Spol. Zeyl.*, 14, 205, fig. 23 (♀).
1936. *Madasumma varipennis* Chopard, *Ceyl. J. Sc.*, (B) 20, 79, fig. 20. Chopard and Chatterjee, 1937, *Ind. Forest Rec.*, N.S., 3, 28. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 561.

General shape long and narrow; anterior and median legs short. *Head* and *pronotum* rufous-brown, pubescent, adorned with blackish markings. Posterior femora and tibiae varied with brown and yellowish.

♂: Subgenital plate very long, narrow. *Elytra* spotted with brown, with well-marked veins; mirror very long, a little oblique, divided a little above the middle; 5 or 6 oblique veins, of which two are long, somewhat diverging; apical field long, presenting 4 veins broken at a right angle, reticulated into large, irregular areolae; veins of the lateral field very close. Wings a little longer than the elytra. *Genitalia* short, in the shape of a rather wide triangular piece, deeply notched at apex.

♀: *Abdomen* yellowish, spotted with black above, with a median brown band beneath. *Elytra* extending very little beyond the apex of abdomen, pubescent, brown with a few dark spots along the humeral edge and in the dorsal areolae, chiefly towards the apex; dorsal field with 11 veins, the first four straight, parallel, the others a little sinuated, emerging from the cubital vein; transverse veinlets numerous and rather irregular; lateral field a little darkened between the veins along the *Sc.* and towards the apex; *Sc.* bearing 8 branches. Wings extending very little beyond elytra. *Ovipositor*

moderately long, straight, with apical valves oval, finely shagreened with two teeth on the superior valves and 5 small ones on the inferior valves (fig. 241).

*Length* of body 20.5–21 mm.; length with wings 24–25.5 mm.; post. fem. 11.5–12.5 mm.; elytra 16.5–18 mm.; ovipositor 10–12.5 mm.

*Range*.—INDIA: Madras: Ayur; Jawalagiri; Kottur; Valparai (P.M.). CEYLON: without locality (types of *varipennis*, B.M.; of *irroratus*, V.M.); Horowupotana (type of *incerta*, B.M.); Vitapalawena; Marichchukkadi (Sandrasagara).

### 314. *Madasumma plana* (Walker)

(Figs. 238, 239)

1869. *Platycalymnus planus* Walker, *Cat. Derm. Salt. Br. M.*, 1, 81.

*Colour* rather uniformly rufo-testaceous, pubescent. *Head* small; frontal rostrum nearly as broad as first antennal joint, deeply furrowed. Eyes presenting 12 longitudinal stripes; lateral ocelli big, oval; anterior one smaller, in the bottom of the rostral furrow. *Pronotum* a little narrowing in front, with sinuated posterior margin; disk feebly convex, a little darkened with a few small brown spots; lateral lobes a little lighter than the disk, with straight inferior margin, rounded angles. Tenth *abdominal* tergite of the male with posterior margin slightly concave, projecting angles forming two triangular, shining lobes; subgenital plate long, acute. *Legs*: Anterior tibiae almost square in section; external tympanum oval, internal in the shape of a split. Posterior tibiae strongly serrulated at base and between the spines. *Elytra* light brown, finely pubescent; mirror a little longer than broad, with anterior angle a right angle, rounded posteriorly, divided a little above the middle; 3 long oblique veins, regularly spaced along the stridulating vein, and 4 shorter ones in the angle; apical field rather long, presenting 4 sectors; *Sc.* bearing 11 branches. Wings a little longer than the elytra. *Genitalia* presenting a large superior piece, quadrangular with rounded angles, and three pairs of hooks which are placed one upon the other, the inferior ones with blunt top (figs. 238, 239).

*Length* of body 28 mm.; length with wings 31 mm.; pronot. 4.5 mm.; post. fem. 16.5 mm.; elytra 24 mm.

*Range*.—NORTH INDIA (type, B.M.).

315. *Madasumma ventralis* Walker

(Figs. 242, 243)

1869. *Madasumma ventralis* Walker, *Cat. Derm. Salt. Br. M.*, 1, 65. Chopard and Chatterjee, 1937, *Ind. Forest Rec.*, N.S., 3, 28.

♂: *Colouration* of head brown above with a small yellow line behind each eye; frontal rostrum rather broad, feebly furrowed; ocelli big, yellow. Palpi brownish at apex. *Pronotum* brown, pubescent, with anterior margin yellow, spotted with brown, edges rounded; lateral lobes light brown, spotted with brown with a yellow band along the superior margin. *Abdomen* brown above, yellow beneath; subgenital plate long, narrowing towards the apex which is rounded. *Legs* testaceous. Posterior femora rather short; posterior tibiae feebly serrulated at base and between the spines. *Elytra* light testaceous with a yellow band on the edges, continuing the band of the same colour on the pronotum; mirror as broad as long, angulate in front, rounded posteriorly, the dividing vein a little before the middle, furcate towards the external margin; 2 long oblique veins and 4 shorter ones in the angle of the stridulating vein; apical field rather short, with 3 veins and a very wide and irregular reticulation; *Sc.* bearing 10 branches. Wings a little longer than the elytra. *Genitalia* with very long inferior hooks (fig. 242).

♀: General colour as in the male; ocelli almost as big. *Elytra* finely pubescent; veins of the dorsal field regularly distant; reticulation in square, regular areolae. Subgenital plate rather deeply notched. *Ovipositor* rather short, straight; apical valves with 4 big, rounded teeth (fig. 243).

*Length* of body 15 mm.; length with wings 21 mm.; pronot. 3 mm.; post. fem. 10.5 mm.; elytra 15–16 mm.; ovipositor 10 mm.

This species can be distinguished by the yellow lateral band extending from the pronotum to the extremity of the elytra.

*Range*.—NORTH INDIA (type, B.M.): Uttar Pradesh: Kumaon; Bhim Tal (P.M.). Mysore: Bangalore.

316. *Madasumma assamensis* n. sp.

(Fig. 244)

*Holotype*: Assam: Chabua (W. L. Jallison, 7.VI.1943), ♂ (U. S. Nat. Museum).

♀: General shape as in *marginipennis*, but rather uniformly coloured. *Head* small, brownish above with the apical part

of the vertex and the frontal rostrum almost black; the latter is narrower than the first antennal joint. Face brown between the antennae, yellow from the clypeus to the labrum. Eyes rather large, rounded; ocelli very small, the anterior one in the middle of the rostrum. Antennae rufo-testaceous. Palpi yellowish mottled with brown; maxillary palpi rather slender, 4th joint much shorter than 3rd and 5th, the last one long, feebly enlarged at apex. *Pronotum* as broad in front as long, enlarged posteriorly; anterior margin very feebly concave, posterior margin sinuated; disk almost flat, light brown with a few yellowish spots; lateral lobes longer than high, with inferior margin straight, rounded angles. *Abdomen* brown; subgenital plate rather wide and short, narrowing posteriorly. *Legs* short, testaceous mottled with brown, very pubescent. Anterior tibiae with a rather large, oval external tympanum, the internal one slit-like. Posterior femora presenting a narrow dark brown median longitudinal stripe; their inferior margins presenting a few brown spots; posterior tibiae brownish, darkened at both base and apex, armed with 5 slender, acute spines on each margin, denticulated at base and between the spines; posterior metatarsi short, compressed, armed with 2 long apical spurs, 3 external denticles and one internal. *Elytra* rather long and narrow, light brown with the edges yellowish, very finely pubescent; mirror one and a half times as long as broad, strongly narrowing posteriorly, the posterior margin almost angular; dividing vein placed well before the middle, very feebly sinuated; diagonal vein shorter than the mirror; 2 long oblique veins and 3 short ones; apical field as long as the mirror, presenting 5 longitudinal veins; lateral field light brown, translucent; *Sc.* with 9 branches. *Genitalia* wide and short, with two pairs of hooks (fig. 244).

*Length* of body 17 mm.; length with wings 24 mm.; pronot. 3.5 mm.; post. fem. 10 mm.; elytra 17 mm.

This species is particularly characterized by the shape of the mirror.

### 317. *Madasumma parcevenosa* Chopard

1931. *Madasumma parcevenosa* Chopard, *Bull. Raffles Mus.*, No. 6, 143.

♀: General shape rather wide and short. *Colouration* dark brown above, rufous on the sides; very pubescent. *Head* with a brown band on the occiput extending to the apex of the rostrum, which is a little narrower than the first antennal joint, rounded at apex, very pubescent; face rufous. Palpi

brown; 5th joint of the maxillary ones rather large, sub-securiform. Antennae ringed with brown and yellowish. Eyes rounded; ocelli small, the anterior one in the middle of the rostrum. *Pronotum* transverse, with anterior margin straight, posterior one subangulate; disk convex, brown, the sides of the brown part somewhat converging in front; lateral lobes high, rufous with inferior margin feebly convex. *Abdomen* brown. *Legs* rather short, brown, very pubescent. Anterior tibiae a little swollen at base, perforated at their external face with a rather large, oval tympanum, the internal one being partly covered; tarsi short, and particularly the metatarsus. Posterior femora rather strongly dilated; tibiae armed with 4 external and 5 internal yellow spines, denticulated between the spines; external spurs very short, supero-internal one extending to the apex of the metatarsus. *Elytra* dark brown with humeral edge a little lighter; dorsal field presenting two free veins and seven branches of the radial; all of them are very oblique, weak and somewhat irregular; transverse veinlets few in number, forming very large, irregular areolae; lateral field presenting a few dark spots along the *Sc.*; this vein bears 8 oblique, parallel branches. Wings extending a little beyond the elytra. *Ovipositor* relatively short and thick, with apical valves long, denticulated beneath, apex rounded.

Male unknown.

*Length* of body 17 mm.; length with wings 25 mm.; post. fem. 11 mm.; elytra 17.5 mm.; ovipositor 10 mm.

This species, which is rather short and wide, somewhat reminds one of *M. ventralis* Walk.; it is remarkable for the brown part on the pronotum, the ringed antennae, the elytra with veins weak and wide apart, and very large areolae.

*Range*.—MALAYA: Selangor: Bukit Kutu (type, Sel. M.).

### 318. *Madasumma quadrata* (Haan)

(Figs. 245, 246 and 254)

1842. *Gryllus* (*Platydictylus*) *quadratus* Haan, *Temminck, Verhand.*, *Orth.*, 234.

1878. *Calypotrypus* (?) *quadratus* Saussure, *Mém. Soc. Genève*, 25, 584.

♂: General shape narrow and slender. *Colour* fulvous, varied with brown, strongly pubescent. *Head* small, rounded, feebly convex above; frontal rostrum narrower than the first joint of antennae, with parallel margins, feebly furrowed; two longitudinal brown bands behind the eyes and a somewhat

less marked one in the middle; face yellowish, more or less spotted with brown. Eyes elongated; ocelli very small. Antennae with brown and yellowish rings. Palpi brown, rather long; 5th joint of maxillary palpi subsecuriform, feebly enlarged at apex. *Pronotum* strongly rounded above, yellowish with a median brown band and numerous spots of the same colour; lateral lobes long, with inferior margin straight, angles quite rounded, the inferior margin darkened. *Abdomen* brownish; subgenital plate short, with angulated posterior margin, yellowish with a brown median band and two narrow lateral lines of the same colour. Cerci yellow spotted with brown.

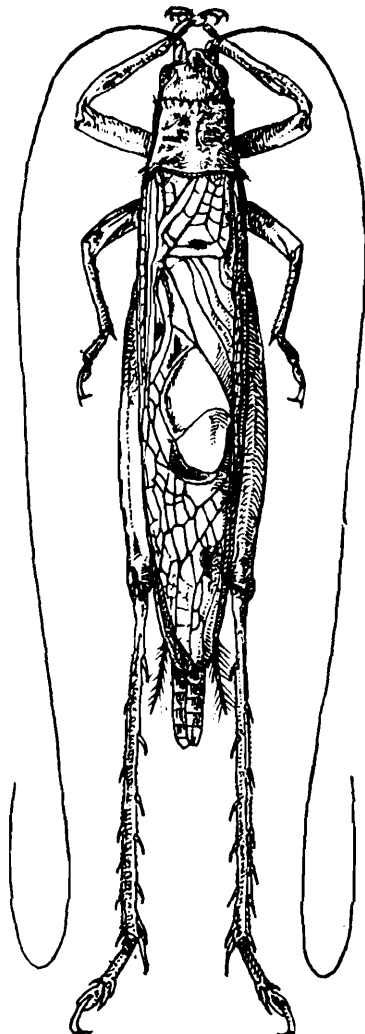


FIG. 254. *Madasumma quadrata* (Haan), ♂ ( $\times 2.38$ ).

*Legs* rather short, yellowish spotted with brown. Anterior tibiae with external tympanum oval, rather narrow, internal one slit-like. Posterior femora moderately dilated at base, compressed, spotted with brown; posterior tibiae armed with

5 rather short, yellow spines on each margin. *Elytra* long and narrow, finely pubescent; dorsal field partly translucent with numerous brown markings; anal field brownish with yellowish spots; edges yellow; apical field with a rather large whitish spot near the posterior margin of the mirror; two large brown spots between the mirror and the chords and behind the mirror; mirror almost twice as long as wide, angulate in front, rounded behind, its general shape oval; dividing vein before the middle; diagonal vein rather short, straight; a long vein between the anterior angle of the mirror and the first chord; apical field long with 5 veins, the reticulation formed of narrow, elongate cells; 6 oblique veins, of which 3 long, parallel, feebly sinuated; lateral field brownish in its inferior part, the superior part yellowish with a few dark spots; *Sc.* bearing 10 undulated veins. Wings extending little beyond the elytra. *Genitalia* with a long superior part ending in two small points, and two pairs of slender inferior hooks (fig. 245).

♀: *Elytra* long and narrow; dorsal field marbled with brownish, chiefly along the humeral edge; veins of the dorsal field rather close and somewhat irregular; transverse veinlets very numerous, irregular and anastomosed, so that they do not constitute quite neat areolae; there is a large, transparent intercalated field; *Sc.* bearing 10 branches. Subgenital plate notched at apex. *Ovipositor* rather long, straight; superior apical valves covered with small tubercles, their inferior margin presenting 3 large, rounded teeth; inferior valves longer than the superior ones, presenting two strong teeth, one at base, the other near the apex (fig. 246).

*Length* of body 20–23 mm.; length with wings 27·5–31·5 mm.; pronot. 4 mm.; post. fem. 11·5–14 mm.; elytra 20–21·5 mm.; ovipositor 13·5–15 mm.

This species is remarkable for its general shape which is still longer and narrower than in *varipennis*.

*Range*.—MALAYA: Selangor: Kuala Lumpur (B.M.). SUMATRA. JAVA (type, L.M.). BORNEO.

### 319. *Madasumma willemsei* Chopard

(Figs. 247, 248)

1925. *Madasumma willemsei* Chopard, *Ann. Soc. ent. Fr.*, 94, 324, figs. 59, 60. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 140.

♂: A large and stout species. *Colour* rufous-brown, pubescent. *Head* small, rufous; vertex sloping; frontal rostrum



narrow with projecting, sinuated margins; face short, yellowish. Eyes small, rounded; ocelli very large, especially the lateral ones; palpi brown; 4th joint of maxillary palpi a little shorter than 3rd, 5th as long, triangular. *Pronotum* transverse, rather strongly narrowing in front, uniformly rufous-brown; anterior margin feebly concave, posterior one sinuated; disk a little flattened, presenting a small depression in the median line, and feebly embossed laterally; lateral lobes rather high, with inferior margin feebly convex, rounded angles. *Abdomen* brown, pubescent, subgenital plate short, truncated at apex. *Cerci* very long. *Legs* rather short, brown, pubescent. Anterior tibiae thick, a little compressed, feebly dilated at base, with external tympanum rather small, almost rectangular, internal tympanum slit-like with somewhat swollen anterior margin. Posterior femora rather strongly dilated at base; tibiae armed with 7 internal, 8 external spines; metatarsi short, thick, with long apical spurs, covered beneath with an abundant pubescence. *Elytra* large and wide, brown; stridulating vein broken at a right angle; mirror rather small, rounded; diagonal vein short; chords strongly curved; 7 oblique veins of which 3 long, converging backwards, the other 4 short, close together, in the angle of the stridulating vein; apical field long, presenting 9 veins, and a reticulation formed of rather regular, almost square areolae; lateral field wrapping; *Sc.* bearing 13 parallel branches. Wings rather strongly exceeding the elytra. *Genitalia* in the shape of a long, plain forceps (fig. 247).

♀: Very large and stout. *Colour* rather dark brown. *Head*, *pronotum* and *legs* as in the male; ocelli not quite so large. *Elytra* with a rather confused venation, the principal veins being scarcely more visible than the transverse veinlets; these forming a very regular reticulation, composed of cells which are rectangular in the basal half, becoming polyhedric or square in the apical half; *Sc.* with 12 veins between which there are a few yellow transverse veinlets. Subgenital plate rather deeply notched. *Ovipositor* rather long, feebly curved; apical valves long, narrow; superior ones presenting at base a long, oblique furrow, their surface with fine oblique ridges, inferior margin presenting 7 rounded teeth (fig. 248).

Length of body ♂ 24.5 mm., ♀ 27.5 mm.; length with wings ♂ 41 mm., ♀ 43.5 mm., pronot. ♂ 4.5 mm., ♀ 5.5 mm.; post. fem. ♂ 17.5 mm., ♀ 20 mm.; elytra ♂ ♀ 30 mm.; ovipositor 25 mm.

This species differs from all the preceding by its stout shape, by the elytral venation and the shape of the frontal rostrum.

*Range*.—MALAYA: Pahang: Kuala Tahan (B.M.). Selangor: Bukit Kutu (Sel. M.). SUMATRA (type, Willemse's collection). SARAWAK. PENINSULAR SIAM.

## Genus MNESIBULUS Stål

1877. *Mnesibulus* Stål, *Oefv. Vet. Akad. Forh.*, 34 (1), 50.

*Type*.—*Mnesibulus lineolatus* Stål.

*Range*.—India, Ceylon, Malaya, Celebes, Java, Philippines, Formosa.

This genus differs from the preceding in the shape of the anterior tibiae which are very strongly dilated at base. The size of the species is usually rather small and the colours a little more vivid than in the *Madasumma*. Several species present in the male sex a glandular pit on the abdomen.

### Key to the species of MNESIBULUS

- 1 Fulvous with head dark brown; posterior femora adorned with three transverse brown bands. *bicolor* (Haan), p. 368  
Species presenting a different colouration. . . . . 2
- 2 Blackish with testaceous elytra; posterior femora blackish-brown with two whitish bands. . . *brunnerianus* (Sauss.), p. 369  
Presenting a different colouration. . . 3
- 3 Head and legs reddish-brown. . . *fuscipennis* Chop., p. 371  
Colouration of the head and legs different. . . . . 4
- 4 Head with a brown band divided by a slender light line. . . . . *andrewesi* Chop., p. 371  
Colouration of the head different. . . . . 5
- 5 Yellowish-testaceous; head with a blackish band between the eyes. . . *nigrolineatus* Chop., p. 370  
Head without blackish band between the eyes. . . . . 6
- 6 Rufous-brown with yellowish legs; genitalia with a median hook-like process. . . . . *pallipes* Chop., p. 372  
Yellowish-testaceous with legs of the same colour; anterior femora with two small longitudinal brown lines; genitalia with superior part divided at apex. . . . . *striatipes* n. sp., p. 373

**320. *Mnesibulus bicolor* (Haan)**

(Fig. 255)

1878. *Gryllus* (*Phalangopsis*) *bicolor* Haan, *Temminck Verhandl., Orth.*, 235.

1878. *Calypotrypus bicolor* Saussure, *Mém. Soc. Genève*, 25, 587.

1931. *Mnesibulus bicolor* Chopard, *Bull. Raffles Mus.*, No. 6, 144.

*Size* rather small. *Colouration* rufous-brown. *Head* wide, blackish; vertex flattened; frontal rostrum triangular, ending in a rounded point. *Face* short, yellow varied with brown. *Eyes* protruding; ocelli small, the anterior one near the extremity of the rostrum. *Antennae* and *palpi* brown; 5th

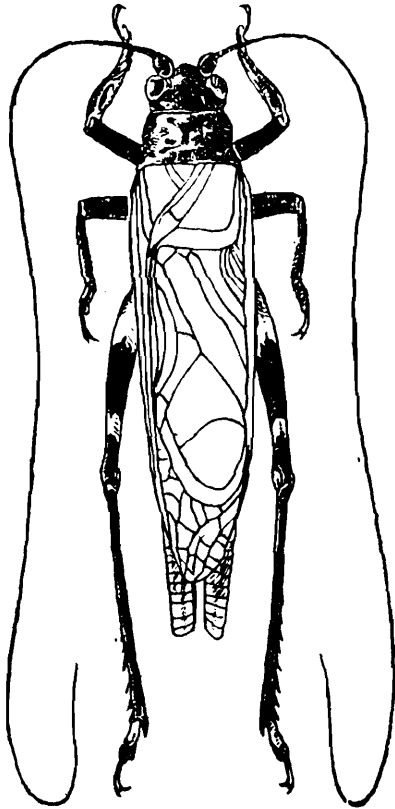


FIG. 255. *Mnesibulus bicolor* (Haan) ♂ ( $\times 3.5$ ).

joint of the maxillary palpi dilated. *Pronotum* rufous-brown, narrowing in front, with sinuated posterior margin; disk flattened with keeled margins; lateral lobes rounded. *Legs* testaceous-brown. Anterior tibiae strongly dilated, with superior face swollen; internal tympanum long with projecting anterior margin, external one oval. Posterior femora, rather slender, presenting three transverse brown bands,

separated by two yellow ones; posterior tibiae with strongly denticulated margins, armed with 4-5 spines; metatarsi short, armed with 1-3 denticles.

♂: *Elytra* longer than the abdomen, fulvous; mirror longer than wide, with anterior angle acute, divided in the middle by a straight vein; 2 long oblique veins and 3-4 shorter ones; apical field short with 4-5 veins. Wings a little longer than the elytra. *Subgenital* plate short; abdomen presenting a glandular depression.

♀: *Elytra* fulvous; dorsal field with 6 veins; transverse veinlets forming a square reticulation. *Ovipositor* short, rather strong, ending in obtuse, indented valves.

*Length* of body 12-13 mm.; length with wings 15-16 mm.; pronot. 2-2.2 mm.; post. fem. 6.7-7.2 mm.; elytra 12-13 mm.; ovipositor 5-5.2 mm.

*Range*.—MALAYA: Selangor: Kuala Pilah. MALACCA (Sel. M.). JAVA (type, L.M.). SUMATRA.

### 321. *Mnesibulus brunnerianus* (Saussure)

1878. *Calypotrypus brunnerianus* Saussure, *Mém. Soc. Genève*, 25, 589.

♀: Slender. *Head* small, black, flattened above; occiput presenting five small flattened tubercles, disposed as a V; frontal rostrum short, wide, flat. Eyes obliquely lengthened; ocelli small. Antennae rufous-brown. Palpi short, testaceous, with superior part of each joint darkened. *Pronotum* black, strongly narrowing in front, posterior margin sinuated; lateral edges keeled; lateral lobes with inferior margin feebly ascending anteriorly, rounded posteriorly. *Legs* short and slender. Anterior tibiae strongly dilated at base, external face with an oval tympanum, internal tympanum slit-like. Posterior femora feebly dilated, dark brown with two whitish bands, the first oblique, wide, regular, the other one narrow, subapical; posterior tibiae brown, finely serrulated, armed with 3-4 spines; posterior metatarsi yellow, armed above with 1-4 denticles. *Abdomen* black above, yellow beneath. Cerci yellowish with apex darkened. *Elytra* longer than the abdomen; dorsal field greyish-yellow with black base; reticulation square; lateral field black; *Sc.* bearing 6 branches. Wings a little longer than the elytra. *Ovipositor* short, yellowish; apical valves black, obtuse with apical teeth.

*Length* of body 12 mm.; length with wings 17 mm.; pronot. 2 mm.; post. fem. 7 mm.; elytra 12 mm.; ovipositor 4.2 mm.

*Range*.—MALAYA: Singapore (Sel. M.). JAVA (type, V.M.).

**322. *Mnesibulus nigrolineatus* Chopard**

1931. *Mnesibulus nigrolineatus* Chopard, *Bull. Raffles Mus.*, No. 6, 144, fig. 10.

♂: Medium size. *Colouration* yellowish-testaceous, with a few black lines and markings on the head, the legs and base of the elytra; thinly pubescent. *Head* rather big, wider than the pronotum in front; vertex flat or even somewhat concave, presenting a blackish band between the eyes; frontal rostrum a little narrower than the first antennal joint, long with parallel margins; face short; yellow. Palpi short, yellowish: 5th joint of maxillary palpi feebly securiform. Antennae yellow with first joint a little spotted with brown on the internal face. Eyes big, rounded, protruding; ocelli very close to one another, the lateral ones large, oval, the anterior one smaller, in the bottom of a broad depression at base of the rostrum. *Pronotum* transverse, with anterior margin straight, posterior one sinuated; disk flat, a little embossed with two blackish spots on the piriform impressions; lateral lobes concolorous with inferior margin rounded, their insertion subangular. *Abdomen* yellowish-brown; 6th tergite presenting an angular process directed forwards and overlying a glandular depression of the 5th tergite; 10th tergite transverse with posterior margin slightly notched; subgenital plate rather long, feebly narrowing at apex, longitudinally canaliculated in the middle. Anterior and median *legs* rather short, yellowish, the tibiae presenting a black line above; anterior femora with two longitudinal blackish lines on internal face; anterior tibiae very strongly swollen, the external tympanum nearly square, the internal one oval, with overhanging margin. Posterior femora rather long, feebly dilated, uniformly yellowish; tibiae a little darkened above, with denticulated margins and armed with 5 short spines in the apical part of each margin. *Elytra* yellowish, nearly transparent, with a small brown band at base, covered with a fine pubescence; mirror rather large, longer than wide, divided in the middle; diagonal vein long and straight; anal field large, the stridulating vein broken at right angle; 7 oblique veins, of which 2 are long, parallel, a little sinuated, and 5 short, also parallel; apical field rather short, presenting 4 veins and a very loose reticulation; apex of the elytra much rounded; lateral field yellowish, translucent with thick, yellow veins; *Sc.* bearing 10 branches. Wings longer than the elytra. *Genitalia* presenting a large tectiform piece ending in two small erected points, inferior part forming a complex of a small median piece and a rather long forceps bearing a long tooth at base of each branch.

*Length* of body 14 mm.; length with wings 20 mm.; post. fem. 8.5 mm.; elytra 13 mm.

This species shows the general shape of certain *Calypotrypus*, particularly of *furcifer*, but the presence of a glandular depression on the abdomen brings it nearer to *Mnesibulus*.

*Range*.—MALAYA: Selangor: Gombak Valley (type, Sel. M.).

### 323. *Mnesibulus andrewesi* Chopard

1928. *Mnesibulus andrewesi* Chopard, *Rec. Ind. Mus.*, 30, 36, figs. 55, 56.

♂: *Size* medium. *Colour* testaceous-brown. *Head* rounded, a little wider than the pronotum, presenting a wide brown band extending from occiput to the apex of frontal rostrum and divided in the middle by a very slender light line; rostrum broad, a little rounded at apex; face short, yellowish. Palpi testaceous; 5th joint of maxillary palpi triangular, very obliquely truncated at apex. Antennae slender, rufous. Eyes rounded; ocelli rather large, yellow. *Pronotum* feebly transverse, very slightly narrowing anteriorly, with anterior margin feebly concave, posterior one sinuated; disk rufous-brown; lateral lobes lighter, with inferior margin nearly straight. *Abdomen* testaceous. Cerci very long. Anterior and median *legs* rufous. Anterior tibiae strongly swollen, with an external oval tympanum opening in the swollen part; internal tympanum quite slit-like. Posterior legs wanting. *Elytra* rather narrow, testaceous; mirror nearly rounded, with posterior margin interrupted a little before the external angle; diagonal vein short; chords feebly curved, united with the mirror by two veinlets; 4 oblique veins, 2 of which are long and slightly diverging, and 2 short; apical field long, with 6 nearly longitudinal, regular sectors; transverse veinlets numerous, forming almost square areolae. Wings lengthily caudate. *Genitalia* very long, almost tubular, the superior part longer than the inferior.

*Length* of body 14 mm.; length with wings 20.5 mm.; pronot. 2.2 mm.; elytra 12 mm.

*Range*.—INDIA: Madras: Nilgiri Hills, 5,500 ft. (type, I.M.).

### 324. *Mnesibulus fuscipennis* Chopard

1928. *Mnesibulus fuscipennis* Chopard, *Rec. Ind. Mus.*, 30, 35.

♀: *Size* medium. *Colouration* more uniform than in the other species of the genus.

*Head* reddish-brown; frontal rostrum a little narrower than the first antennal joint, feebly rounded at apex and slightly furrowed above; face dark brown; cheeks and palpi much lighter, reddish-yellow; 5th joint of maxillary palpi in the shape of an almost equilateral triangle. Antennae yellowish-brown. *Pronotum* feebly narrowing anteriorly, with anterior margin straight, posterior one subangulate; disk nearly flat but slightly raised posteriorly, reddish-brown with two irregular dark bands on the sides; lateral lobes lighter, with inferior margin rounded. *Abdomen* brown above, yellowish beneath. *Cerci* long, yellowish. *Legs* uniformly reddish-brown. Anterior tibiae a little darkened, strongly swollen at base, fusiform with external tympanum oval, internal one hollow and almost quadrangular. Posterior tibiae bearing 5 spines on each superior margin; apical spurs short, especially the external ones. *Elytra* rather narrow, rather dark brown with a darker spot at base and a blackish stripe on the shoulders, a blackish spot a little before the middle of the edge and a few small light spots along the same edge; dorsal field with 10 veins, rather oblique, regular, except the 4th and 5th which are more distant than the others; first three veins free, the others emerging from the cubital; transverse veinlets rather regular, forming nearly square areolae; lateral field lighter than the dorsal field; *Sc.* bearing 6 branches. Wings extending much beyond the elytra. *Ovipositor* as long as the cerci, straight, with apical valves small, black, forming a small rounded mass, granulose in its apical half only, and ending in two obtuse teeth.

*Length* of body 13 mm.; length with wings 20.5 mm.; post. fem. 8 mm.; elytra 14 mm.; ovipositor 7 mm.

*Range*.—INDIA: Travancore (Kerala): Cochin; Chalakudi (type, I.M.).

### 325. *Mnesibulus pallipes* Chopard

1936. *Mnesibulus pallipes* Chopard, *Ceyl. J. Sc.*, (B) 20, 81, figs. 21, 22. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 561.

♂: Narrow, lengthened. *Colouration* rufous-brown with yellowish legs. *Head* as wide as pronotum, rufous, pubescent; vertex broad, flattened; ocelli very small, scarcely visible; face short, triangular, the superior part rufous, the inferior one yellow; clypeus very narrow. Palpi with 4th joint much shorter than 3rd, 5th a little longer, slightly enlarged at apex, brown. Antennae rufous. *Pronotum* rufous, pubescent; anterior margin straight, posterior one

feebly convex; disk regularly convex; lateral lobes concolorous, with straight inferior margin, angles rounded. *Abdomen* brown above, yellow beneath; subgenital plate moderately long, triangular. Anterior and median *legs* rather short, yellowish; anterior tibiae rounded above, rather strongly dilated at base; external tympanum nearly rectangular, internal one at the bottom of a depression. Posterior femora rather long, presenting a trace of a rufous-brown, wide ring before the apex; tibiae armed with 4 small external, 5 internal spines; metatarsi short, yellow with brown top, armed above with 3 external denticles. *Elytra* narrow, long, light brown, covered with a very fine and close pubescence; mirror very long, oblique, divided almost in the middle, with acute anterior angle, posterior part narrowing; chords very feebly curved, the first one united to the mirror by a small vein; diagonal vein rather short, straight; 4 oblique veins, 2 long ones somewhat diverging, and 2 coming from the angle of the stridulating vein; apical field rather short, with three sectors and reticulated in large, irregular areolae; *Sc.* bearing 8 branches. Wings a little longer than the elytra. *Genitalia* short with a hook-like median piece.

*Length* of body 11 mm.; length with wings 16 mm.; elytra 10.5 mm.

*Range*.—CEYLON: Madola nr. Opanaka (type, Col. M.).

### 326. *Mnesibulus striatipes* n. sp.

(Figs. 249, 250)

*Holotype*.—Malaya: Selangor; Bukit Kutu (H. M. Pendlebury, 14.III.1931), ♂ (Sel. M.).

♂: *Size* medium; rather long and narrow. *Colouration* a rather uniform yellowish-testaceous. *Head* a little wider than the pronotum in front; rufous-yellow, shining; occiput adorned with 4 rather badly defined brown lines; vertex depressed, presenting a transverse brown line between the eyes; frontal rostrum very narrow, somewhat furrowed to receive the anterior ocellus. Face triangular, yellowish in its superior part, brown on the clypeus and the labrum. Eyes rounded, feebly protruding; ocelli big, almost contiguous and united by a carinated line. Antennae yellowish-brown. Palpi short, yellow; 4th joint of the maxillary palpi very short, 5th wide, with convex superior margin, apex feebly truncated. *Pronotum* transverse, feebly narrowing in front, with anterior margin a little concave, posterior margin feebly



sinuated; disk almost flat, feebly pubescent, slightly shining, yellowish tinged with rufous in the middle and on the piriform impresses; lateral lobes yellowish with inferior margin rather strongly convex with angles rounded. *Abdomen* yellowish-brown, presenting a glandular pit on the 5th and 6th tergites; posterior margin of the 5th tergite elevated and notched in the middle to lodge an angular projection of the 6th; disk of the 5th tergite presenting a cupula with carinated median line (fig. 249). Epiproct truncated at apex; subgenital plate rather long, subangulate at apex. *Legs* rather short, of the same colour as the body; anterior femora presenting two small longitudinal, brown lines on the internal face. Anterior tibiae very strongly dilated at base, presenting a rather wide brown line on the superior face; external tympanum oval, short, rather small; internal tympanum in the shape of a slit, the membrane at the bottom of a deep hollow. Median femora with a brown line on the external face; tibiae similarly marked as the anterior ones. Posterior femora long and narrow, uniformly yellowish-rufous; tibiae darkened above, finely serrulated and armed with 5 external, 6 internal spines; metatarsi short, armed above with 3 external, 1 internal denticles. *Elytra* long and narrow, amber-yellow, a little darkened at base, finely pubescent; mirror longer than wide, angulate in front, rounded posteriorly, divided in the middle by a straight vein; diagonal vein rather short, almost straight; chords close to one another, feebly curved; 6 oblique veins, two of which are long, almost straight and 4 shorter ones, curved; anal field rather long, presenting 4 veins and a very broad reticulation; lateral field concolorous; *Sc.* bearing 7 branches. Wings rather strongly exceeding the elytra. *Genitalia* with a large superior part divided at apex and two inferior pieces feebly curved downwards (fig. 250).

*Length* of body 12 mm.; length with wings 19.5 mm.; post. fem. 8 mm.; elytra 12.5 mm.

### Genus CORIXOGRYLLUS Bolivar

1900. *Corixogryllus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 807.

*Type*.—*Corixogryllus abbreviatus* Bolivar.

*Range*.—South India.

General shape oval, feebly depressed. Elytral venation similar in both sexes. Anterior tibiae unperforated; posterior tibiae denticulated at base and between the spines, armed with 4 external, 5 internal spines.

**327. *Corixogryllus abbreviatus* Bolivar**

(Figs. 251, 256)

1900. *Corixogryllus abbreviatus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 808.

*Size* rather large. *Colour* testaceous, pubescent. *Head* small, as broad as pronotum in front; occiput adorned with four blackish bands which are united on the frontal rostrum; which is narrower than the first antennal joint, with feebly converging margins, feebly convex with a small depression at

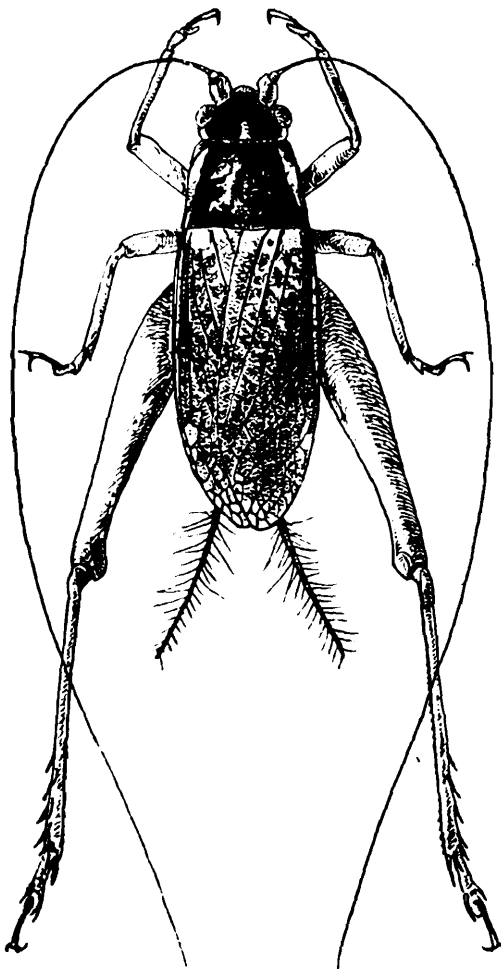


FIG. 256. *Corixogryllus abbreviatus* Bol., ♂ ( $\times 3.5$ ).

apex; face and cheeks yellowish. Eyes rounded, rather protruding; ocelli very small. Antennae yellowish, darkened towards the apex. Palpi yellowish, rather short; 5th joint of maxillary palpi rather large, strongly enlarged, feebly securiform. *Pronotum* a little wider than long, feebly narrowing in

front, with posterior margin sinuated; disk convex, very pubescent, with rounded edges, rufous with two blackish bands; lateral lobes yellowish with inferior margin strongly ascending posteriorly. *Abdomen* blackish above; cerci yellow, rather short, dilated at base. *Legs* yellowish, rather short, pubescent. Anterior and median femora rather thick, compressed; tibiae short, cylindrical, the anterior ones without tympani; tarsi very short, especially the metatarsus, 3rd joint longer, slender. Posterior femora rather long, moderately dilated at base; tibiae a little longer than the femora, pubescent, with denticulated superior margins and armed with 5 spines on each side; apical external spurs very short, internal ones a little longer, chiefly the superior one; metatarsi rather short, armed above with 3 external, 1 internal denticles; 3rd joint of the tarsus long and slender. *Elytra* a little shorter than the abdomen, feebly overlapping in the median line, rounded at apex; dorsal field greyish, pubescent, with a feebly marked yellowish spot at base and a yellowish band on the edge, formed of thickened veinlets; veins oblique, rather distant from one another; 3 free veins and 3 branches of the cubital, which are somewhat lost in the irregular, wide reticulation; lateral field yellowish with brown veins; 3 free veins and 2 branches of the *Sc*. Wings very short.

♂: Subgenital plate yellow. *Genitalia* composed of three pieces, the lateral ones rounded, the median truncated at apex (fig. 251).

♀: A little larger than the male. Subgenital plate wide, presenting at apex a broad but weak notch. *Ovipositor* long, almost straight, feebly depressed; apical valves black, tuberculated on the external face, strongly denticulated at apex; superior valves with two short teeth; inferior valves with three inferior and one apical acute teeth.

*Length* of body ♂ 11.5–14 mm., ♀ 15–15.5 mm.; pronot. ♂ 2.2–2.5 mm., ♀ 3.5 mm.; post. fem. ♂ 7–8.5 mm., ♀ 10 mm.; elytra ♂ ♀ 8–10 mm.; ovipositor 10–15 mm.

*Range*.—INDIA: Madras: Madura (type Pantel's coll., P.M.); Kodaikanal (P.M., M.M.); Shambaganur (B.M.).

## Genus MUNDEICUS Chopard

1951. *Mundeicus* Chopard, *Rec. S. Austr. Mus.*, 9, 504.

*Type*.—*Podoscirtus longifemur* Chopard.

*Range*.—Australia, Malaya, Burma.

As in the preceding genus the elytral venation is similar in both sexes but the anterior tibiae are perforated on both

faces. Maxillary palpi rather large, with last joint more or less securiform. Subcostal vein of the elytra with several oblique branches which are inserted along the whole length of the vein.

*Key to the species of MUNDEICUS*

Ocelli small; elytra with six yellow spots on the humeral edge. *sexmaculatus* n. sp., p. 377

Ocelli very large; elytra with three yellow spots at base. *trimaculatus* n. sp., p. 378

**328. *Mundeicus sexmaculatus* n. sp.**

*Holotype*: Malaya: Selangor: Bukit Kutu, 3,500 ft. (H. M. Pendlebury, 14.III.1931), ♀ (Selangor Museum).

*Size* medium. *Colouration* brown with light legs and six yellow spots on the elytra. *Head* small, brown, pubescent; frontal rostrum almost as broad as first antennal joint, yellowish with brown margins, the yellow tint extending a little along the internal margin of the eyes. Face long, yellowish-rufous with a brown band beneath each eye, following the antennal socket to the rostrum. Eyes rounded, feebly protruding; ocelli very small, the anterior one at the bottom of a brown depression a little before the extremity of the rostrum. Antennae yellowish with first joint a little darker. Palpi yellowish-brown; 4th joint of the maxillary palpi almost as long as the 3rd, 5th narrow, obliquely truncated at apex, with short superior margin. *Pronotum* scarcely broader than long, narrowing a little in front, with anterior margin straight, posterior one sinuated, both ciliated with rufous; disk convex, rufous-brown, covered with a whitish, silky pubescence; lateral lobes of the same colour as the disk, with a yellow spot near the posterior margin; inferior margin a little convex, angles rounded. *Abdomen* brown above, yellow beneath; subgenital plate rather large, notched at apex. *Legs* yellowish, spotted with brown. Anterior tibiae feebly swollen at base, perforated with a rather small, oval, external tympanum, the internal one much larger, feebly hollowed. Posterior femora rather strong, spotted with brown above and on the external face, darkened at apex; tibiae yellow with apex and base of the spines brown; margins finely serrulated and both armed with 7 spines; metatarsi yellow with brown apex, compressed, armed with 5 denticles on the external, superior margin. *Elytra* rather long, with feebly convex margins, dark brown; dorsal field with three yellow spots on the humeral edge, the basal one extending along almost the whole length; veins nearly longitudinal,

regularly spaced, the cubital one furcate at base and its branch divided towards the apical third; transverse veinlets numerous and regular, brownish; lateral field with a few yellow spots between the veins at base; *Sc.* bearing 5 branches. Wings brown, feebly longer than the elytra. *Ovipositor* rather long, straight, slender; apical valves in the shape of a long oval, with external face ridged and presenting 3 rounded teeth on the inferior margin.

*Length* of body 13.5 mm.; length with wings 21 mm.; post. fem. 11 mm.; elytra 13 mm.; ovipositor 10 mm.

### 329. *Mundeicus trimaculatus* n. sp.

*Holotype*: Burma: Southern Shan States; Kalaw, alt. 3,500 ft., ♀ (Academy of Natural Sciences, Philadelphia).

♀: *Size* rather large, light brown with three yellowish spots at base of the elytra. *Head* rather small, yellowish-brown above, finely pubescent, with a narrow brown band behind each eye; frontal rostrum almost as broad as first antennal joint, dark brownish, feebly furrowed above; ocelli very large, the anterior one in the middle of the rostrum. Face yellowish, shining. Antennae and palpi yellowish; last joint of the maxillary palpi much longer than the preceding, rather broad, subsecuriform, obliquely truncated at apex. *Pronotum* feebly narrowing in front, with anterior margin feebly concave, posterior one somewhat angulate; disk almost flat, finely pubescent, brown with the usual impresses lighter; lateral lobes much lighter than the disk, with 4 small brown spots along the anterior margin, inferior margin straight, angles rounded. *Abdomen* yellowish-brown; subgenital plate wide, rather deeply notched at apex, with rounded angles. *Legs* of the same colour as the body, strongly pubescent; anterior tibiae presenting a rather small external tympanum, the internal one larger but almost covered by the dilated anterior margin; posterior femora rather short; posterior tibiae armed with 4 spines on each margin, denticulated at base and between the spines; apical spurs short, chiefly the external ones; supero-internal a little longer than the median; posterior metatarsi short, armed above with 3 external and 2 internal denticles and 2 strong apical spurs. *Elytra* light brown, finely pubescent, presenting the 3 basal spots already mentioned and 4 feebly marked yellow and brownish spots along the humeral margin; veins obliquely converging towards the apex, regularly distant; transverse veinlets forming rather regular rectangular cells; lateral field almost transparent, presenting 3 free veins and 6 branches of the *Sc.*

Wings a little longer than the elytra. *Ovipositor* rather short and strong, almost straight; apical valves narrow, rounded at apex, with 4 inferior teeth.

*Length* of body 18 mm.; length with wings 25.5 mm.; post. fem. 11 mm.; elytra 18.5 mm.; ovipositor 8 mm.

## Genus APHONOIDES Chopard

1874. *Aphonus* Saussure, *Miss. Mexique, Orth.*, 509.

1903. *Aphonomorphus* Rehn, *Ent. News*, 14, 260 (part).

1940. *Aphonoides* Chopard, *Ent. m. Mag.*, 76, 203.

*Type*.—*Gryllus (Eneoptera) punctatus* Haan.

*Range*.—Malaya, Malay Archipelago, Philippine Islands, N. and W. Australia.

Elytral venation similar in both sexes; anterior tibiae perforated on the internal face only; last joint of maxillary palpi long, rather narrow, with truncated apex. The membranaceous valvae of the genitalia, as well as the spermatophore, are usually very long (fig. 253).

The species of this genus are rather small, usually rather elongated, greyish or brownish, more or less pubescent.

### Key to the species of APHONOIDES

- 1 General shape relatively short;  
wings of the same length as the  
elytra; transverse veinlets of the  
elytra brown. . . . . *tessellatus* n. sp., p. 390
- General shape long and rather  
narrow; wings much longer than  
the elytra. . . . . 2
- 2 Yellowish with frontal rostrum and  
base of the antennae blackish. *fuscirostris* n. sp., p. 388
- Head with uniform colouration. 3
- 3 Greyish, very pubescent; legs punc-  
tated with brown; elytra spotted  
with brown in the areolae. . . . . 4
- Colouration more uniform and  
pubescence less abundant. . . . . 6
- 4 Fifth joint of the maxillary palpi  
long. . . . . 5
- Fifth joint of the maxillary palpi  
short. . . . . *bipunctatus* n. sp., p. 383
- 5 Frontal rostrum nearly as broad as  
the first antennal joint; face and  
lateral lobes of pronotum yellow,  
more or less spotted with brown;  
legs with a long, whitish pubes-  
cence. . . . . *griseovariegatus* n. sp.,  
p. 385

- Frontal rostrum distinctly narrower than the first antennal joint; face and lateral lobes of pronotum with a wide brown band; pubescence of the legs not so long.. *cinereus* Sauss., p. 382
- 6 Lateral ocelli much larger than the anterior one; elytra brown with yellow veins. *angustifrons* (Chop.), p. 389
- Lateral ocelli scarcely larger than the anterior one. . . . . 7
- 7 Rather large species (14–16 mm.). *punctatus* (Haan), p. 380  
Smaller species (10–12 mm.). 8
- 8 Subgenital plate of male long, feebly rounded at apex; elytra brownish with nearly transparent lateral field. *gracilis* (Chop.), p. 387
- Subgenital plate of male short, rounded; head, pronotum and legs yellowish; elytra greyish with almost straight, parallel veins. *griseipennis* n. sp., p. 386

### 330. *Aphonoides punctatus* (Haan)

(Figs. 258, 266)

1842. *Gryllus* (*Eneoptera*) *punctatus* Haan, *Temminck Verhandl., Orth.*, 232, pl. 20, fig. 6.
1878. *Aphanus punctatus* Saussure, *Mém. Soc. Genève*, 25, 659.
1931. *Aphonomorphus punctatus* Chopard, *Bull. Raffles Mus.*, No. 6, 145.

General shape slender, not at all depressed; light brown, more or less spotted with dark; finely pubescent. *Head*: Vertex feebly excavated; frontal rostrum very narrow, flat; face yellowish, more or less spotted with brown, sometimes with a dark band between the antennae. Ocelli disposed in a triangle, the lateral ones oval, the anterior small, round. Antennae feebly annulated with brown. Palpi yellowish; 5th joint of maxillary palpi longer than the 4th, scarcely widening at apex which is rounded, the inferior margin strongly truncated.

*Pronotum* a little narrowing in front, finely and irregularly spotted with brown; lateral lobes concolorous, with almost straight inferior margin, feebly rounded angles. *Legs* more or less spotted with brown. Anterior tibiae moderately dilated at base, presenting a large, oval internal tympanum. Posterior femora rather slender; tibiae with margins serrulated and armed with 5 spines on each margin, the last external one very small. *Elytra* narrow, longer than the body, pale yellowish-brown or greyish, sometimes with a few

feeble brown spots, or the veinlets along the cubital vein feebly thickened, yellow; lateral field of the same colour as the dorsal field; *Sc.* bearing 5-6 branches. Wings a little longer than the elytra.

♂: Subgenital plate rather long, narrowing and rounded at top. *Genitalia* quite plain, formed of a single plate deeply notched at apex, the lobes being truncated at apex (fig. 258).



FIG. 257. *Aphonoides cinereus* (Haan), ♂ ( $\times 3.8$ ).

♀: Ovipositor of rather variable length, straight, slender; apical valves oval, blunt at apex with 3 rounded inferior teeth (fig. 266).

*Length* of body 14-16 mm.; length with wings 19-22 mm.; post. fem. 10.5 mm.; elytra 13-16 mm.; ovipositor 9-14 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur (Sel. M., P.M.). Perak: Batang Padang (Sel. M.). JAVA. CELEBES. NEW GUINEA.



331. *Aphonoides cinereus* (Haan)

(Fig. 257)

1842. *Gryllus* (*Eneoptera*) *cinereus* Haan, *Temminck Verhandl., Orth.*, 232, pl. 20, fig. 5.  
 1878. *Aphonus cinereus* Saussure, *Mém. Soc. Genève*, 25, 662.  
 1931. *Aphonomorphus cinereus* Chopard, *Treubia*, 12, suppl., 187.

*Size* and general appearance similar to the preceding; colouration more strongly mixed with dark brown and more abundant pubescence. *Head* presenting three rather well-defined brown bands; frontal rostrum a little narrower than the first antennal joint, depressed; face brown except the superior part which is yellowish. Eyes round, rather strongly prominent, striated with 7–8 slender brown lines; ocelli rather big, the anterior one on the rostrum, a little before the apex. Antennae brownish with a few small light rings. Palpi yellowish, a little mottled with brown; 5th joint of the maxillary palpi longer than 4th, rather feebly widening towards the apex, with superior and apical margins forming a regular curve. *Pronotum* feebly narrowing in front, with posterior margin strongly sinuated, subangulate in the middle; disk almost flat, covered with an abundant golden pubescence, mottled with brown chiefly on the impresses; lateral lobes with convex inferior margin, presenting a wide brown band in their superior part. *Legs* yellowish, more or less strongly spotted with brown, pubescent; apex of the femora and base of the tibiae brown; anterior tibiae rather strongly swollen at base, presenting a large internal tympanum; posterior tibiae yellowish with three brown rings, rather strongly denticulated and armed with 4 external, 5 internal spines. *Elytra* adorned with brown and whitish spots along the humeral edge; veins of the dorsal field very regularly spaced in the female, those of the male somewhat irregular, the branches of the cubital vein rather strongly distant; lateral field presenting a brown band along the *Sc.* with yellow veinlets; the other veinlets brown on a light ground colour.

♂: Subgenital plate rather long with rounded top. Genitalia feebly sclerified, deeply notched, forming two large lobes which are triangular with feebly denticulated internal margin.

♀: *Ovipositor* rather long, straight; apical valves narrow, rounded, the superior ones presenting 3 rounded teeth, the inferior ones with 2 acute teeth.

*Length* of body ♂ 13.5 mm., ♀ 15 mm.; length with wings ♂ 20.5 mm., ♀ 24.5 mm.; post. fem. ♂ 9 mm., ♀ 10.5 mm.; elytra ♂ 13 mm., ♀ 16 mm.; ovipositor 9 mm.

*Range*.—MALAYA: Selangor: Kuala Lumpur; Bukit Kutu (Sel. M., P.M.).

Although not so common in the collections, this species seems as widely distributed as the preceding in the Oriental region.

### 332. *Aphonoides bipunctatus* n. sp.

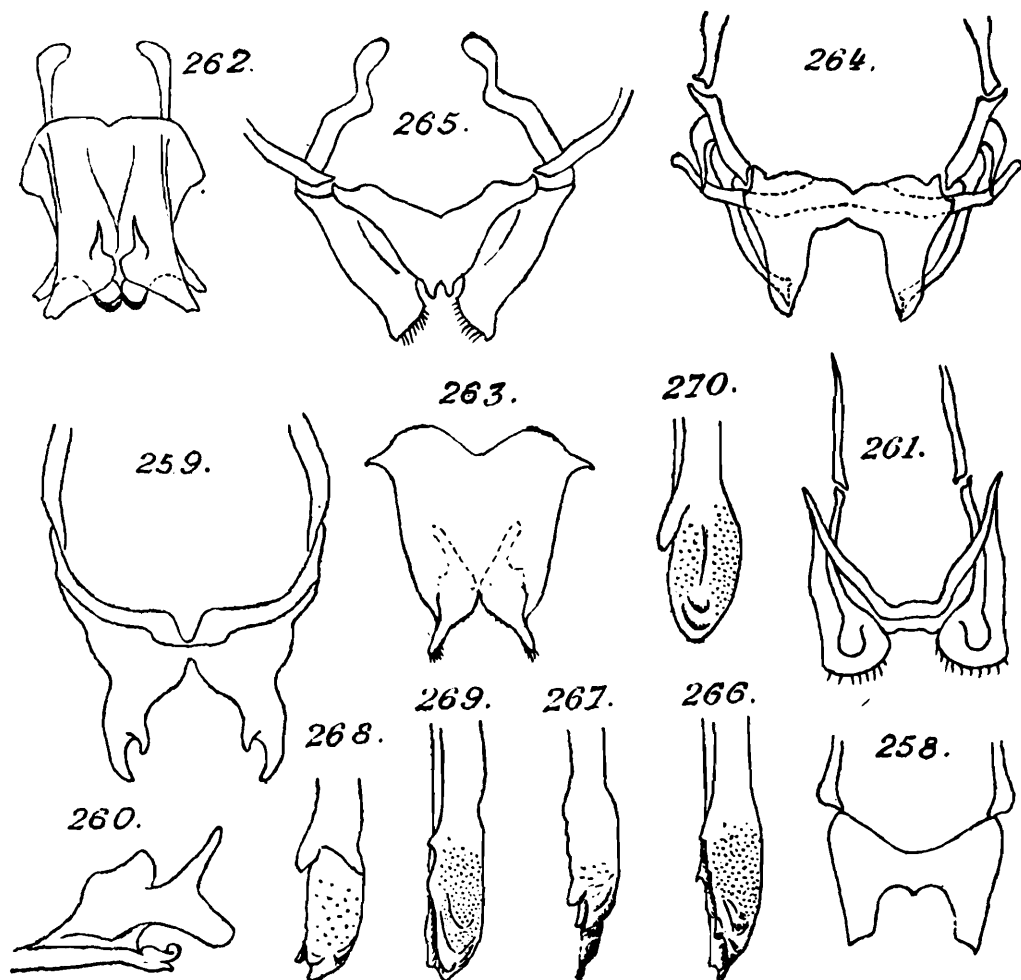
(Figs. 259, 260 and 267)

*Holotype*: Malaya: Pahang: Fraser's Hill, 4,200 ft. (H. M. Pendlebury, 3.VII.1931), ♀ (Selangor Museum).

*Allotype*: Sumatra: Wai Lima, Lampongs, ♂ (Paris Museum).

Very close to the preceding. *Colouration* greyish, more or less spotted with brown, finely pubescent. *Head* presenting four very feeble brown lines above; vertex a little flattened; frontal rostrum narrower than the first antennal joint, rather long, truncated at apex, with rounded angles. Face triangular, yellowish; cheeks with a brown band behind the eye. Antennae yellowish with a few scarce small brown rings. Palpi short, yellowish; 4th joint short, 5th also short, obliquely truncated at apex. *Pronotum* a little longer than broad, with posterior margin rather strongly sinuated; disk rounded, dull yellowish, adorned with two large brown spots on the usual impresses; in addition, there is a row of small round brown spots along the anterior margin and a few similar spots rather regularly disposed in two transverse bands; lateral lobes a little darkened and spotted with brown. *Legs* yellowish, spotted with brown, rather strongly pubescent. Anterior tibiae dilated at base, perforated with a large, oval, internal tympanum. Posterior femora rather slender, a little spotted with brown on the external face; tibiae armed with 4 short external spines and 5 longer internal ones; margins serrulated at base and between the spines; posterior metatarsi rather long, compressed, presenting two apical denticles and two very small spines on the external margin. *Elytra* long and narrow, greyish with a few brown spots, chiefly along the humeral edge; veins feebly oblique, regularly spaced, the cubital bearing four branches; lateral field almost transparent, except for a brown band in the superior part; *Sc.* with 5 branches. Wings rather lengthily caudate.

♀: *Abdomen* yellowish-brown; subgenital plate very feebly notched. Cerci long, irregularly ringed with brown and yellowish. *Ovipositor* rather short, slender, its apical valves rather long, oval, almost smooth, ending in three strong, but little acute teeth (fig. 267).



FIGS. 258 to 270. Genitalia of: 258. *Aphonoides punctatus*. 259. *A. bipunctatus*. 260. *id.*, lateral view. 261. *A. griseovariegatus*. 262. *A. griseipennis*. 263. *A. gracilis*. 264. *A. fuscirostris*. 265. *A. tessallatus*. 266. Apical valves of ovipositor of *A. punctatus*. 267. *id.* of *A. bipunctatus*. 268. *id.* of *A. griseipennis*. 269. *id.* of *A. gracilis*. 270. *id.* of *A. angustifrons*.

♂: *Genitalia* presenting the general shape as in *punctatus*, but with a strong tooth on the internal margin of the deep notch (figs. 259–260).

*Length* of body 10–12 mm.; length with wings 18–20 mm.; pronot. 2.8 mm.; post. fem. 8.5 mm.; elytra 12.5–13 mm.; ovipositor 7 mm.

**333. *Aphonoides griseovariegatus* n. sp.**

(Fig. 261)

*Holotype*: Malaya: Selangor: Kuala Lumpur (H. M. Pendlebury, 10.II.1931), ♂ (Selangor Museum).

Close to *punctatus*, but smaller and more strongly pubescent. *Colouration* greyish varied with yellowish and brown spots. *Head* short; frontal rostrum a little narrower than the first joint of antennae, feebly rounded at apex. Face yellowish with a few brown marblings. Antennae rather thick, irregularly ringed with grey and yellow. Palpi yellowish-testaceous; 4th joint of maxillary palpi much shorter than 3rd, 5th long, feebly enlarged and obliquely truncated above at apex. *Pronotum* as long as broad, narrowing a little in front, with anterior margin straight, posterior one rather strongly sinuated, subangulate in the middle; disk convex, greyish varied with brown and yellowish, presenting a few small brown spots along both anterior and posterior margins, and two larger spots in the usual impresses; surface covered with a fine yellowish pubescence, the anterior margin ciliated; lateral lobes a little lighter than the disk, spotted with brown, with inferior margin straight, angles feebly rounded. *Abdomen* greyish above, yellowish beneath; subgenital plate rather long, rounded at the top. *Legs* rather short, greyish, spotted with brown, covered with a long, white pubescence. Anterior tibiae flattened above, rounded beneath, perforated with a rather large, oval tympanum on the internal face. Posterior femora long and rather narrow; tibiae strongly pubescent, armed with 5-6 external spines, 7-8 internal ones; posterior metatarsi short, armed with 3 small spines on the external margin. *Elytra* narrow, elongated, greyish with somewhat darker spots in the areolae, the humeral edge darkened and interrupted by 5 small, whitish spots; veins oblique, regularly spaced, 8 in number, 5 of which are branches of the cubital vein; lateral field very light grey with a few brown spots; *Sc.* bearing 5 branches. Wings a little longer than the elytra. *Genitalia* of the same type as *punctatus* but each lobe strongly rounded (fig. 261).

*Length* of body 11.5 mm.; length with wings 18.5 mm.; post. fem. 8.5 mm.; elytra 12 mm.

*Allotype*: N. Borneo: Samawang near Sandakan (C. Boden Kloss and H. M. Pendlebury, July 1937), ♀ (Selangor Museum).

♀: Very similar to the male, but a little larger. Subgenital plate feebly notched at apex. *Ovipositor* rather long, straight,

with ovoid apical valves, presenting 4 rounded teeth along the inferior margin, the external face provided with small tubercles and a few rounded ridges.

*Length* of body 13 mm.; length with wings 22 mm.; post. fem. 10 mm.; elytra 14 mm.; ovipositor 9 mm.

### 334. *Aphonoides griseipennis* n. sp.

(Figs. 262, 268)

*Holotype*: Malaya: Perak: Sungei Lui, ♀ (Paris Museum).

♀: Rather small species. *Colouration* yellowish-brown, with head and pronotum reddish. *Head* short, almost cubical; vertex a little flattened; frontal rostrum a little narrower than the first antennal joint of antennae, flat, feebly rounded at apex; lateral ocelli united by a small V-shaped keel. *Face* short, yellow. *Eyes* a little vertically lengthened; lateral ocelli rather large, oval; anterior one small, placed in a small depression in the middle of the rostrum. *Antennae* and *palpi* yellowish; 4th joint of maxillary palpi shorter than 3rd, 5th large, rather broad, a little rounded and obliquely truncated at apex. *Pronotum* feebly transverse, light rufous, with straight anterior margin, posterior one sinuated, subangulate in the middle; disk feebly convex, finely pubescent; lateral lobes a little lighter than the disk, with rounded anterior angle. *Abdomen* yellowish-brown. *Legs* light rufous. *Anterior tibiae* short, fusiform, perforated with a large, oval tympanum on the internal face, the external face merely depressed. *Posterior femora* rather thick; *tibiae* serrulated and armed with 4 external, 6 internal spines; *metatarsi* rather long, strongly compressed, armed with 3 external denticles and one internal. *Elytra* long, rather narrow, greyish, very finely pubescent, with veins lighter, a little rufous; dorsal field with nearly longitudinal, regularly spaced veins; *Cu.* furcate quite near the base, its posterior branch divided towards the apical third; lateral field almost transparent; *Sc.* bearing 4 branches. *Wings* rather lengthily caudate. *Ovipositor* rather long, straight; apical valves short, shagreened with 2 short, rounded teeth at apex (fig. 268).

*Allotype*: ♂: Sumatra: Wai Lima, Lampongs. ♂: Very similar to the female, a little smaller. *Subgenital plate* rather short, rounded at apex. *Genitalia* angularly notched at apex, with two small erected points (fig. 262).

*Length* of body ♀ 11 mm., ♂ 10 mm.; length with wings ♀ 17 mm., ♂ 16 mm.; post. fem. ♀ 8 mm., ♂ 7.5 mm.; elytra 10.5 mm.; ovipositor 8 mm.

### 335. *Aphonoides gracilis* (Chopard)

(Figs. 263, 268)

1925. *Aphonomorphus gracilis* Chopard, *Ann. Soc. ent. Fr.*, 94, 327, figs. 63-65.

*Size* medium. *Colour* testaceous-brown. *Head* a little flattened above; frontal rostrum almost as broad as the first antennal joint, with marginal ridges accompanied by a shallow parallel groove. Face testaceous. Palpi yellowish; 4th joint of maxillary palpi short, 5th a little enlarged with superior margin convex. Antennae light brown. Eyes rounded, protruding; ocelli rather big, the anterior one in the middle of the rostrum. *Pronotum* scarcely wider than long, with anterior margin almost straight, posterior one convex in the middle, both furnished with long rufous hairs; disk feebly convex; lateral lobes lighter than the disk, with feebly convex inferior margin, anterior angle rounded. *Abdomen* yellowish-brown. Cerci very long, yellowish at base, brown at apex. *Legs* of the same colour as the body. Anterior tibiae with a large, oval, internal tympanum. Posterior femora rather feebly dilated at base, dotted with brown spots, chiefly along the internal inferior margin; posterior tibiae pubescent, serrulated almost to the base, armed with 5 external, 6 internal spines; metatarsi rather long, yellowish, presenting 4 external, 1 internal denticles above. *Elytra* long and narrow; dorsal field brownish or a little rufous, more or less speckled with brown; lateral field very light, almost transparent; dorsal field presenting 7 longitudinal, parallel, equidistant veins, of which 4 arise from the cubital vein; transverse veinlets fairly regular, forming rather long areolae; the veinlets along the humeral edge a little thickened, more or less yellowish; *Sc.* bearing 5 branches.

♂: Subgenital plate long, feebly canaliculated in the middle, rounded at apex. *Genitalia* presenting a large superior part, deeply notched at apex, and an inferior piece presenting almost the same shape (fig. 263).

♀: *Ovipositor* rather long, straight, with apical valves small, rounded, ridged and armed beneath with three rounded teeth (fig. 269).

*Length* of body 12.5 mm.; length with wings 20 mm.; post. fem. 9 mm.; elytra 13 mm.; ovipositor 8.5 mm.

*Range*.—MALAYA: Singapore (P.M.). Pahang: Lubok Tamang (Sel. M.). PHILIPPINE ISLANDS (type, P.M.).

### 336. *Aphonoides fuscirostris* n. sp.

(Fig. 264)

*Holotype*: Malaya: Selangor: Kuala Lumpur (H. M. Pendlebury, 6.I.1932), ♂ (Paris Museum).

♂: *Size* rather small, yellowish with frontal rostrum and base of the antennae blackish-brown. *Head* short, yellow above as far as the internal angle of the eyes, blackish beyond, to the extremity of the rostrum; the latter is as wide as first antennal joint, lateral margins finely elevated, truncated at apex. Face yellow, except the superior part of the facial shield which is brownish; base of the antennae circled with brown. Antennae a little thickened, dark brown at base, about as far as the 20th joint, then quickly becoming yellowish. Palpi yellow; 5th joint of the maxillary palpi as long as 3rd, a little enlarged with apical margin strongly and obliquely truncated above, so that the superior margin is very short. *Pronotum* feebly transverse, with straight anterior margin, posterior one sinuated; disk convex, yellowish, covered with an abundant pubescence; lateral lobes of the same colour, with much rounded anterior margin. *Abdomen* light brown above, yellowish beneath; epiproct with posterior margin truncated. *Legs* rather short, yellowish, pubescent. Anterior tibiae feebly fusiform in shape, perforated on the internal face with a long, oval tympanum; median tibiae somewhat darkened above; metatarsi of the two anterior pairs very short. Posterior femora short and rather thick; tibiae armed with 4 external, 6 internal spines, denticulated at base and between the spines. *Elytra* yellowish; dorsal field with almost longitudinal, parallel veins, 3 of which are free and plain, and the *Cu.* furcate at base, its posterior branch divided again towards the middle; lateral field yellowish, nearly transparent; *Sc.* bearing 5 oblique branches. Wings feebly exceeding the elytra.

♂: Subgenital plate large, with rounded posterior margin. *Genitalia* formed of a superior piece widely notched at apex, inferior pieces slender, in the shape of a hook (fig. 264).

♀: Subgenital plate presenting a rounded notch. *Ovipositor* short, straight, with apical valves oval, rounded at apex, ridged on the external face.

*Length* of body 12 mm.; length with wings 18 mm.; elytra 11.5 mm.; ovipositor 7 mm.

**337. *Aphonoides angustifrons* (Chopard)**

(Fig. 270)

1930. *Podoscirtus angustifrons* Chopard, *Sarawak Mus. J.*, 4, 39, fig. 72.

*Shape* rather narrow, elongate. *Head* short; occiput and vertex dark brown, the latter somewhat flattened; frontal rostrum narrower than the first antennal joint. Face short, with superior part, to the base of clypeus, dark brown, nearly black, inferior part yellow; cheeks yellow. Antennae yellowish with two first joints brown. Palpi yellow; 4th joint of the maxillary ones shorter than 3rd, 5th rather long, feebly enlarged at apex. Eyes rather large, rounded; lateral ocelli very big, oval, well apart at base of the rostrum; anterior ocellus small, in the middle of the rostrum. *Pronotum* brown, a little varied with yellowish, with anterior margin straight, posterior margin sinuated; disk convex; lateral lobes with inferior half yellow. *Abdomen* yellowish. Cerci very long, yellowish. *Legs* yellowish. Anterior tibiae rather strongly swollen at base, with rather large, oval internal tympanum, the external one merely indicated by a depression. Posterior femora rufous, unicolorous; tibiae very slightly darkened at apex, armed with 5 external, 6 internal spines which are brown at base; posterior metatarsi compressed with 3 denticles on the external margin. *Elytra* narrow, dark brown with yellow transverse veinlets between the veins; dorsal field presenting 5 parallel, nearly longitudinal veins, the 4th and the 5th united near their base; transverse veinlets regular and rather numerous; *Sc.* bearing 8 oblique branches. Wings extending much beyond the elytra.

♂: Subgenital plate very long, narrow, but rounded at apex. *Genitalia* formed of a tectiform, short, superior piece, the membranaceous valves very long, following the shape of the subgenital plate (Fig. 270).

♀: *Ovipositor* long, straight, slender, with apical valves small, rounded, the inferior ones bidentate at apex, the superior ones covered with small, acute tubercles, presenting a small, longitudinal keel and one large, rounded subapical tooth.

*Length* of body ♂ 12 mm., ♀ 13 mm.; length with wings ♂ 18 mm., ♀ 21.5 mm.; post. fem. ♂ 8 mm., ♀ 8.5 mm.; elytra ♂ 12.5 mm., ♀ 13.5 mm.; ovipositor 10.5 mm.

*Range*.—MALAYA: Singapore (P.M.). BORNEO: Sarawak (type, S.M.).



338. **Aphonoides tessellatus** n. sp.

(Fig. 265)

*Holotype*: Malaya: Pahang: Cameron's Highland (H. M. Pendlebury, 13.X.1923), ♂ (Selangor Museum); *allotype*: Selangor: Bukit Kutu, ♀ (Paris Museum).

*Size* medium; general shape short, the wings scarcely exceeding the elytra. *Colouration* of head and pronotum of a uniform rufous-brown; elytra greyish with transverse veinlets marked with a brown line. *Head* short; vertex a little flattened; frontal rostrum a little narrower than the first antennal joint, truncated at apex. Face triangular, yellowish. Eyes a little projecting forwards; ocelli very small. Antennae and palpi rufous-brown; 4th joint of maxillary palpi short, 5th equal to 3rd, a little widened, with superior and apical margins feebly convex, apex obliquely truncated. *Pronotum* a little transverse, with feebly convex anterior margin, posterior one sinuated; disk convex, rufous, pubescent, the impresses lighter than the background; lateral lobes concolorous, with feebly convex inferior margin, anterior angle rounded. *Abdomen* light brown. Cerci long, rufous. *Legs* rather short, rufous. Anterior tibiae perforated on the internal face with a rather large, but narrow, oval tympanum. Posterior femora thick, uniformly rufous; posterior tibiae denticulated and armed with 4 external, 6 internal spines; metatarsi compressed, armed above with 5 external, 1 internal denticles. *Elytra* feebly exceeding the abdomen, rather broad, with external margin convex; dorsal field greyish, very finely pubescent, with almost longitudinal, regularly parallel veins; *Cu.* furcate near its base, the inferior branch divided towards the middle; transverse veinlets rather numerous, rather regular, most of them marked with a brown line; some of the veins also marked with brown in the apical half; lateral field a little lighter than the dorsal field; *Sc.* with 4 branches. Wings greyish, scarcely longer than the elytra.

♂: Subgenital plate very long, narrowing and rounded at apex. *Genitalia* with superior part narrow and feebly notched at apex, inferior parts widely separated, obliquely truncated (fig. 265).

♀: Subgenital plate narrowing towards the extremity and very slightly notched. *Ovipositor* rather long, slender, straight; superior apical valves small, oval, tuberculated on the external face and presenting near the apex a large rounded tooth and along the apical margin 5 rounded denticulations; inferior valves longer than the superior ones, denticulated beneath and canaliculated on the external face.

*Length* of body ♂ 9 mm., ♀ 10 mm.; length with wings ♂ 11 mm., ♀ 13 mm.; post. fem. 8.5 mm.; elytra ♂ 8.5 mm., ♀ 11.5 mm.; ovipositor 8 mm.

This species differs from the other species of the genus by its short general shape and by the special aspect given by the elytral veinlets marked with brown.

## Genus EUSCYRTUS Guérin

1844. *Euscyrtus* Guérin, *Icon. R. anim., Ins.*, 334.

1874. *Euscirtus* Saussure, *Miss. Mexique, Orth.*, 500.

*Type*.—*Euscyrtus bivittatus* Guérin.

*Range*.—Africa, South of the Sahara, Madagascar, Seychelles, Mauritius, S. Asia, Philippine Islands, North Australia, Mexico.

General shape long and narrow. Head short, cubical. Pronotum flattened above. Anterior and median legs very short; anterior tibiae usually perforated on both faces; posterior legs very long, femora feebly dilated. Elytral venation similar in both sexes. Ovipositor of the female long, more or less flattened, without differentiated apical valves.

### Key to the species of EUSCYRTUS

- 1 Rather large species (about 20–30 mm. in length with the wings); ovipositor long and straight. 2  
 Smaller species (10–15 mm.); ovipositor in most species sinuated in the shape of a S. . . . . 4
- 2 Frontal rostrum as broad as first antennal joint, with parallel margins. . . *laminifer* Chop., p. 398  
 Frontal rostrum narrower, with feebly converging margins. . . 3
- 3 Larger species (length with wings 23 mm.); Malaya. *longecaudatus* Chop., p. 399  
 Smaller species (length with wings 18 mm.); Ceylon. *necydaloides* (Walk.), p. 397
- 4 Frontal rostrum as wide or almost as wide as the first antennal joint 5  
 Frontal rostrum narrower than the first antennal joint. . . . . 6
- 5 Frontal rostrum short; wide, flattened above, with anterior ocellus placed almost at apex. *hemelytrus* (Haan.), p. 392

- Frontal rostrum longer and a little narrower, feebly convex above, with anterior ocellus placed almost in the middle. . . . . *crassiceps* (Sauss.), p. 394
- 6 General colouration uniformly pale testaceous; elytra extending almost to the apex of abdomen. . . . . *concinuus* (Haan.), p. 394
- Pale brown with two lateral yellowish bands, extending from behind the eyes to the posterior margin of pronotum. . . . . 7
- 7 Internal margin of elytra strongly oblique; veins oblique, somewhat anastomosed and projecting. . . . . *angustifrons* n. sp., p. 395
- Internal margin of elytra almost straight; veins feebly oblique, almost parallel, weak. . . . . *bolivari* n. sp., p. 396

### 339. *Euscyrtus hemelytrus* (Haan)

(Figs. 272, 276)

1842. *Gryllus* (*Eneoptera*) *hemelytrus* Haan, *Temminck Verhandel. Orth.*, 231, pl. 20, fig. 2.
1878. *Euscirtus hemelytrus* Saussure, *Mém. Soc. Genève*, 25, 627. Bolivar, 1900, *Ann. Soc. ent. Fr.*, 68 (1899), 807.
1931. *Euscyrtus hemelytrus* Chopard, *Bull. Raffles Mus.*, No. 6, 145. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) 16, 295. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 82. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 561.

*Shape* small and slender. *Colouration* pale testaceous with more or less visible blackish markings on the pronotum and elytra. *Head* (Fig. 272) a little broader than the pronotum, short, thick, adorned above with four broad longitudinal brown bands; frontal rostrum as wide as first antennal joint, truncated, with anterior ocellus in a small depression near the apex. Face wide, oblique, rufous. Antennae and palpi rufous. *Pronotum* almost square, with anterior margin feebly concave, posterior one sinuated; disk flat, dark brown in the middle, with two yellowish lateral bands; lateral lobes with inferior margin feebly ascending posteriorly, adorned with a broad blackish band. *Abdomen* testaceous with two brown bands above; subgenital plate of the male rather long, very narrow but somewhat rounded at apex. *Legs* slender, rufo-testaceous; posterior femora very feebly dilated at base, a little striated with rufous-brown; posterior tibiae finely serrulated on the superior margins and armed with 6 external, 8 internal spines. *Elytra* rather short, rounded at apex, dark brown in the middle, almost transparent on the sides; dorsal field presenting 3 oblique veins and a rather irregular

reticulation, forming almost square areolae; lateral field blackish with light inferior margin. Wings of the same length as the elytra; a macropterous condition is usually scarce in this species, but it has been found by W. H. Rehn more abundant than the brachypterous one at Ledo (Assam). *Genitalia* very small, feebly sclerified, rounded at apex, with two spinulose lobes at base (fig. 276); spermatophore very large, whitish. *Ovipositor* of the female long, a little depressed at base, sinuated in the shape of an S.

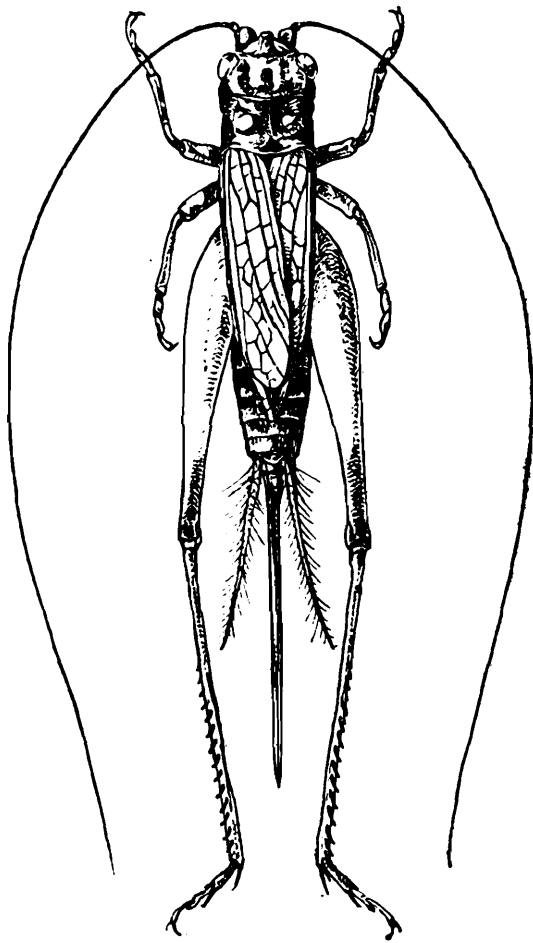


FIG. 271. *Euscyrtus crassiceps* (Sauss.), ♀ ( $\times 3.45$ ).

*Length* of body 8–9 mm.; post. fem. 6–7 mm.; elytra 2.7–3 mm.; ovipositor 8 mm.

*Range*.—INDIA: W. Bengal: Calcutta (P.M.). Assam: Tinsukia; Chabua (U.S.N.M.); Ledo (Phil. M.). CEYLON: Peradeniya; Kandy; Ambalagoda (B.M.); numerous localities (Sandrasagara). BURMA: Lashio (B.M.); Shingbuiyang (Phil. M.). MALAYA: Selangor: Kuala Lumpur (Sel. M.). JAVA (type). BATAVIA. MOLUCCAS. NORTH AUSTRALIA.

340. **Euscyrtus crassiceps** (Saussure)

(Figs. 271, 273)

1878. *Euscirtus crassiceps* Saussure, *Mém. Soc. Genève*, **25**, 629, pl. 19.  
 1931. *Euscyrtus crassiceps* Chopard, *Bull. Raffles Mus.*, No. 6, 145.

Close to the preceding, with head big, globular and pronotum widening in front. *Head* a little wider than the pronotum; frontal rostrum rather long, as broad as the first antennal joint, with parallel margins, limited at base by a transverse furrow; anterior ocellus in the bottom of a depression in the middle of the rostrum; behind each eye there is a blackish band extending on to the lateral lobes of the pronotum and the lateral field of elytra. Antennae annulated with brown and testaceous. *Abdomen* adorned above with two brown bands. *Legs* as in *hemelytrus*. *Elytra* shorter than the abdomen, light testaceous with a more or less visible, lateral brown band; dorsal field with 4 oblique veins; reticulation formed of large, somewhat irregular, lozenge-shaped areolae. Wings slightly exceeding the elytra. *Ovipositor* long, flattened and broad at base, curved upwards in the basal third, straight afterwards.

*Length* of body 10.5–10.8 mm.; post. fem. 10 mm.; elytra 5.5–6 mm.; ovipositor 12–12.5 mm.

*Range*.—MALAYA: Selangor: Klang Gates (P.M.). JAVA (type, V.M.).

341. **Euscyrtus concinnus** (Haan)

(Fig. 274)

1842. *Gryllus* (*Eneoptera*) *concinnus* Haan, *Temminck Verhandel., Orth.*, **231**, pl. 20, fig. 3.  
 1878. *Euscirtus concinnus* Saussure, *Mém. Soc. Genève*, **25**, 626.  
 1925. *Euscyrtus concinnus* Chopard, *Ann. Mag. nat. Hist.*, (9) **15**, 535. Chopard, 1931, *Bull. Raffles Mus.*, No. 6, 145. Chopard, 1935, *Ann. Mag. nat. Hist.*, (10) **16**, 295. Chopard, 1936, *Ceyl. J. Sc.*, (B) **20**, 83. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, **52**, 561.

A little larger and more uniformly coloured than the preceding species. *Head* scarcely broader than the pronotum, presenting four very feebly marked broad brown bands; frontal rostrum as long as the first joint of antennae, narrow with feebly concave margins. *Pronotum* very light brown with two yellowish humeral bands; lateral lobes with a wide brown band. *Abdomen* yellowish-brown, 9th tergite large, hollowed in the middle with thick margins and rather strongly

prominent angles; subgenital plate of male long, acute at apex. *Legs* yellowish, somewhat spotted with brown; posterior femora long and slender; posterior tibiae armed with 8 external, 10 internal spines, the serrulation between the spines being very feeble on the internal margin. *Elytra* testaceous with a very pale brown band on the sides; dorsal field presenting 4 feebly oblique veins and a reticulation formed of large, irregular cells. Wings usually much longer than the elytra; a micropterous condition exists but seems rather scarce. *Genitalia* presenting nearly the same shape as those of *hemelytrus*. *Ovipositor* long and sinuated as in *hemelytrus*.

*Length* of body 8.5–10 mm.; length with wings 11–13 mm.; post. fem. 8–8.5 mm.; elytra 5–5.5 mm.; ovipositor 9 mm.

*Range*.—INDIA: Mysore: Mudumalai (P.M.). W. Bengal: Diamond Harbour (B.M.). Assam: Chabua; Doom Dooma (U.S.N.M.); Gauhati (B.M.); Ledo (Phil. M.). CEYLON: Numerous localities (Col. M., Sandrasagara). MALAYA: Malacca: Langkawitch (P.M.). Singapore (P.M.). Selangor: Kuala Lumpur; Perak; Taiping; Parit Buntar (Sel. M.). MOLUCCAS. BURMA: Rangoon: Amherst Dist., Kyando (P.M.); Shingbuiyang; Lournoo (Phil. M.). JAVA (type). MALAY ARCHIPELAGO. SIAM. COCHIN-CHINA.

### 342. *Euscyrus angustifrons* n. sp.

(Fig. 275)

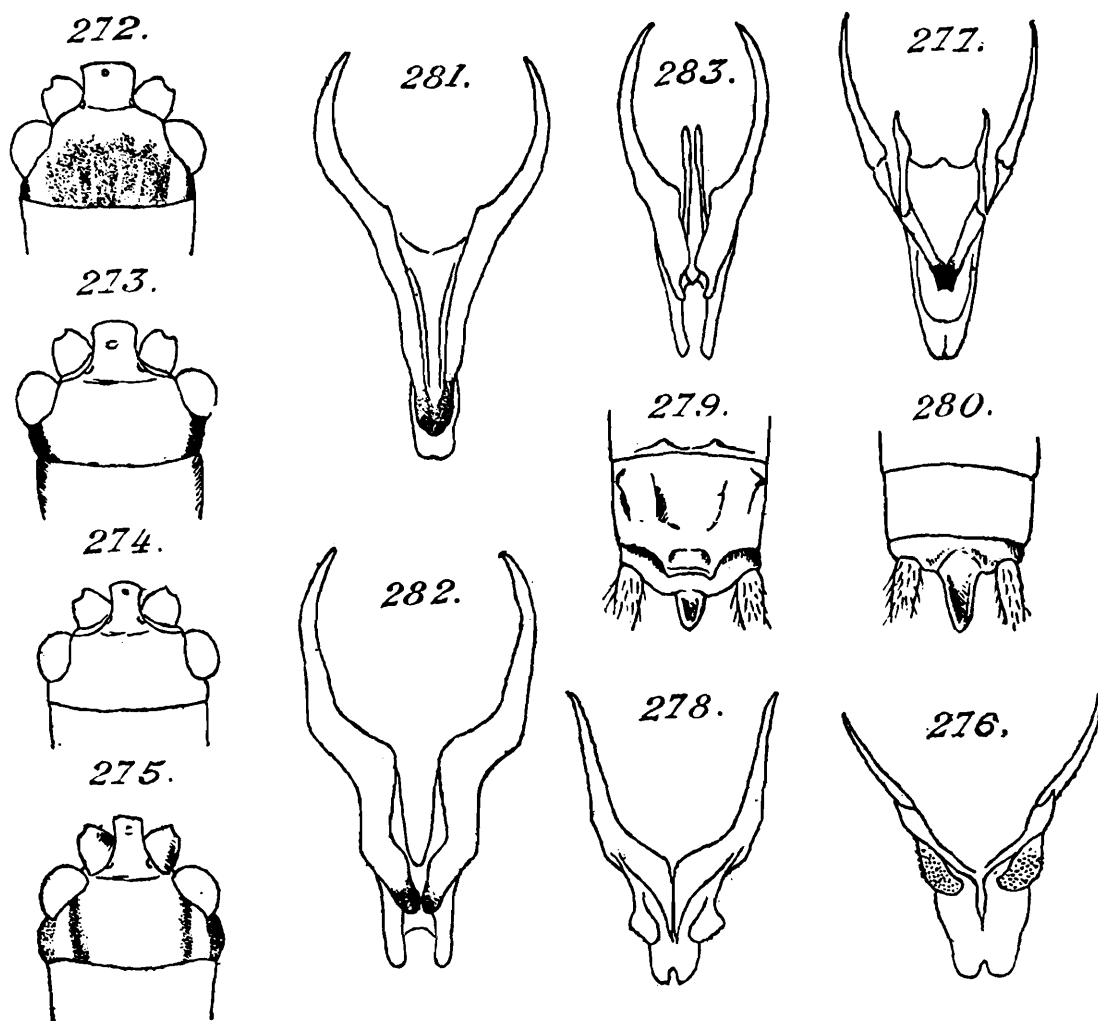
*Holotype*: Assam: Dibrugarh (Arbor Expedition), ♀ (Paris Museum).

*Size* and general aspect of *concinus* with very short elytra. *Head* a little broader than the pronotum, light brown above with two narrow yellowish lines near the middle and a wide yellow band behind each eye; frontal rostrum narrow, a little longer than the first antennal joint, with parallel margins. *Pronotum* feebly widening in front; disk light brown with two lateral yellow bands continuing those of the head; lateral lobes pale brown, much longer than high, with rather strongly sinuated inferior margin. *Abdomen* yellowish with a brown median band and presenting on each tergite two small rufous-brown spots; 10th tergite with concave posterior margin; epiproct strongly furrowed. *Legs*: Posterior femora long, rather strongly spotted with brown; posterior tibiae armed with 8 external, 9 internal spines, feebly serrulated on the margins. *Elytra* extending to the apex of the third abdominal tergite, with strongly oblique internal margin; dorsal field very light brown with a yellowish humeral band; 4 strong, feebly oblique veins; reticulation very wide; lateral

field light brown, with 3 veins. Wings quite abortive. *Ovipositor* depressed, almost straight in the basal half, afterwards sinuated and strongly curved downwards at apex.

*Length* of body 11 mm.; pronot. 1.8 mm.; post. fem. 9 mm.; *ovipositor* 10 mm.

*Range*.—INDIA: Assam: Dibrugarh (type); Chabua (U.S.N.M.).



FIGS. 272 to 283. 272. Head of *Euscirtus hemelytrus*. 273. *id.* of *E. crassiceps*. 274. *id.* of *E. concinnus*; *id.* of *E. angustifrons*. 276. Genitalia of *E. hemelytrus*. 277. *id.* of *E. concinnus*. 278. *id.* of *E. bolivari*. 279. Abdominal extremity of *E. concinnus*. 280. *id.* of *E. bolivari*. 281. Genitalia of *E. necydaloides*. 282. *id.* of *Patiscus malayanus*. 283. *id.* of *P. quadripunctatus*.

### 343. *Euscirtus bolivari* n. sp.

1900. *Euscirtus hemelytrus* Bolivar (non Haan), *Ann. Soc. ent. Fr.* 68 (1899), 807.

*Holotype*: Madras: Kodaikanal (P. Castets), ♂ (Paris Museum).

Close to the preceding. *Head* brown above, with two broad, very neat, yellow bands behind the eyes; vertex flattened; frontal rostrum very narrow, with parallel margins. *Face* short and wide, rufo-testaceous. *Eyes* rounded, rather protruding. *Antennae* and *palpi* yellowish; maxillary palpi very short, 5th joint rather wide, rounded at apex. *Pronotum* transverse, with feebly concave anterior margin, posterior margin feebly sinuated; disk almost flat, brown with two yellow bands continuing those of the head; lateral lobes a little longer than high, with much rounded anterior angle. *Abdomen* yellowish-brown; 9th tergite with posterior margin feebly concave, angles not at all projecting; epiproct narrow, deeply furrowed in the middle; subgenital plate long, acute at apex. *Legs*: Anterior tibiae presenting on the internal face an oval depression, without tympanum. *Elytra* slightly exceeding the second abdominal tergite, rounded at apex; dorsal field almost transparent, presenting 5 rather weak, almost straight veins, the two first of which (*Cu.* and *Cup.*) united at base, the *Cup.* furcate near the apex; transverse veinlets rather scarce and irregular. No wings. *Genitalia* rather short, rounded at apex.

*Length* of body 10 mm.; pronot. 2 mm.; post. fem. 9 mm.; elytra 3.5 mm.

This species differs from the preceding chiefly in the elytral venation; and from *concinus* in the shape of the abdominal extremity and the colouration.

### 344. *Euscyrus necydaloides* (Walker)

(Fig. 281)

- 1871. *Oecanthus necydaloides* Walker, *Cat. Derm. Salt. Br. M.*, 5, suppl., 15.
- 1878. *Euscyrus necydaloides* Saussure, *Mém. Soc. Genève*, 25, 630.
- 1925. *Euscyrus necydaloides* Chopard, *Ann. Mag. nat. Hist.*, (9) 15, 535. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 83. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 562.
- 1930. *Euscyrus perforatus* Chopard, *Ceyl. J. Sc.*, (B) 20, 84. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 562.

*Size* rather large, narrow. *Colour* testaceous. *Head* a little broader than the pronotum, cubical, slightly flattened above, light testaceous, adorned with two more or less visible reddish-brown bands on the median line, uniting on the rostrum; a band of the same colour is behind each eye; frontal rostrum rather narrow, with feebly converging margins; anterior ocellus inserted at some distance from the apex.



Eyes rounded, projecting. Face short, yellow. Palpi very short; 5th joint of maxillary palpi narrow, securiform. *Pronotum* with parallel sides, anterior margin feebly concave, posterior one a little sinuated; disk feebly convex, unicolorous or with a reddish-brown median band; lateral lobes with inferior margin a little sinuated, anterior angle rounded. *Abdomen* yellowish, darkened in the middle beneath. Anterior and median *legs* short, rufous; femora rather strongly swollen, especially the anterior ones; anterior tibiae slightly enlarged at base, perforated with two large, oval drums (the external one sometimes obliterated). Posterior femora slender; posterior tibiae mottled with brown near the base, armed with 7-9 external, 9-11 internal spines which are blackish at top. *Elytra* testaceous, extending almost to the apex of abdomen; dorsal field with 6 regular, slightly oblique veins, 2 of which are branches of the cubital; transverse veinlets scarce, forming large, somewhat irregular, lengthened areolae; lateral field almost transparent with veins somewhat reddish, of which two are free and two are branches of the *Sc*. Wings longer than the elytra.

♂ : Subgenital plate of the male long, acute and somewhat curved upwards at apex. Genitalia very long and narrow, rounded and feebly notched at apex (fig. 281).

♀ : Subgenital plate of the female rather large, almost flat. Ovipositor very long, flattened, almost straight, only slightly curved upwards near the apex, which is not very acute.

*Length* of body 12-13.5 mm.; length with wings 18-24 mm.; pronot. 2.5-3 mm.; post. fem. 9-13 mm.; elytra 9-11 mm.; ovipositor 17.5 mm.

*Range*.—CEYLON (type, B.M.): Peradeniya; Labugama (Col. M.); Kitulgala (Sandrasagara); Colombo (type of *perforatus*, Col. M.).

### 345. *Euscyrtus laminifer* Chopard

1936. *Euscyrtus laminifer* Chopard, *Ceyl. J. Sc.*, (B) 20, 83.  
Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 562.

*Size* rather large. *Colour* testaceous-yellow with a wide more or less visible, brown band extending from the head to the apex of elytra. *Head* a little wider than the pronotum, adorned with a brown spot in the middle of the vertex; frontal rostrum nearly as wide as the first antennal joint, with parallel margins; anterior ocellus in a depression near the apex of the rostrum. *Pronotum* very feebly widening in front, with anterior margin a little concave, posterior margin sinuated; disk convex, presenting two transverse furrows,

the posterior part feebly elevated; lateral lobes yellow, with much rounded anterior angle. *Legs* yellowish; the anterior and median ones short; anterior tibiae perforated on internal face only. Posterior femora relatively short and stout; tibiae serrulated and armed with 7 external, 12 internal blackish spines. *Elytra* presenting a dark brown band throughout their whole length; dorsal field with 6 slightly oblique veins, the 1st one curled on the 2nd about the middle, the 4th emerging from the angle, the 5th and 6th from the cubital; transverse veinlets forming rather regular, almost square areolae; lateral field almost transparent, presenting two free veins and two branches of the *Sc*. Wings caudate, blackish.

♂: Dark pattern well defined. Abdomen yellowish; subgenital plate long, but somewhat rounded at apex.

♀: General shape not quite so slender as the male; colouration more uniform. Subgenital plate small, truncated at apex. *Ovipositor* very long, flat, very feebly curved at apex, which is acute.

*Length* of body 13.5 mm.; length with wings 18 mm.; post. fem. 10.5 mm.; elytra 10.5 mm.; ovipositor 25–29 mm.

*Range*.—CEYLON: Labugama (type Col. M.).

### 346. *Euscyrtus longecaudatus* Chopard

1925. *Euscyrtus longecaudatus* Chopard, *Ann. Soc. ent. Fr.*, 94, 330.

♀: *Size* rather large. *Colour* almost uniformly pale testaceous. *Head* rather big, square; frontal rostrum very narrow, furrowed. Eyes rounded. Palpi short, yellow; 4th joint of maxillary palpi a little shorter than 3rd, rather strongly enlarged at apex, 5th feebly curved, feebly dilated at apex. Antennae very long, yellowish. *Pronotum* transverse, presenting a feebly marked yellowish band on the lateral edge; anterior margin straight, posterior one a little sinuated. *Abdomen* brownish; subgenital plate truncated at apex, with feebly rounded angles. *Cerci* long, brown. *Legs* rather short, yellowish. Anterior tibiae feebly dilated, with external tympanum rather small, internal one large, oval. Posterior tibiae with spines yellow, black at apex, 6 external, 11–12 internal; metatarsi armed with 3 external, 1 internal denticles; 3rd joint longer than the metatarsus, very slender. *Elytra* a little longer than the abdomen, almost transparent; dorsal field presenting 3 free, feebly oblique veins and the cubital vein with its posterior branch which is trifurcate; transverse veinlets weak, forming almost square areolae;

lateral field with 3 veins and the *Sc.* furcate near the base. Wings rather strongly caudate. *Ovipositor* extremely long, flattened at base, almost straight except at apex which is a little sinuated.

*Length* of body 16 mm.; length with wings 24 mm.; pronot. 2.5 mm.; post. fem. 13 mm.; elytra 12.5 mm.; ovipositor 34 mm.

This species is close to the preceding, differing from it by its very long ovipositor and the narrower frontal rostrum.

*Range*.—MALAYA: Selangor: Kedah Peak (P.M.); Klang Gates (B.M.); Perak; Jor Camp (Sel. M.). JAVA (type, Willemse's collection).

### Genus PATISCUS Stål

1877. *Patiscus* Stål, *Oefvers. Vet. Akad. Förh.*, 34 (10), 51.

*Type*.—*Euscirtus* (*Patiscus*) *dorsalis* Stål.

*Range*.—Philippine Islands, India, Malaya.

General shape as in *Euscirtus*; head longer and usually narrower, with eyes horizontally lengthened. Elytra with longitudinal, quite parallel veins in the dorsal field; transverse veinlets forming square areolae. Wings feebly exceeding the elytra.

#### *Key to the species of PATISCUS*

- |   |  |                                     |
|---|--|-------------------------------------|
| 1 | General colouration pale testaceous; elytra extending to the apex of abdomen.  | <i>malayanus</i> n. sp., p. 400     |
|   | Head, pronotum and elytra presenting a broad lateral brown band; elytra covering only a part of the abdomen. . . . . | 2                                   |
| 2 | Larger species (length of body 17 mm.); Sikkim. . . . .  | <i>cephalotes</i> (Sauss.), p. 402  |
|   | Smaller species (length of body 12 mm.); Ceylon, Malaya. . . . .   | 3                                   |
| 3 | Head long, eyes horizontally elongated.  | <i>quadripunctatus</i> Bol., p. 403 |
|   | Head short, eyes feebly elongated. . .   | <i>brevipennis</i> n. sp., p. 403   |

### 347. *Patiscus malayanus* n. sp.

(Figs. 282, 284)

*Holotype*: Malaya, West Coast: Langkawi Island, ♂;  
*allotype*: same locality, ♀ (Paris Museum).

*Size* medium, general shape long and narrow. *Colouration* pale testaceous, feebly marked with brown. *Head* elongated;

vertex flattened, with 5 feebly visible brown bands; frontal rostrum very narrow, almost as long as the first antennal joint. Eyes horizontally elongated. Palpi short; 5th joint of maxillary ones securiform, feebly enlarged. *Pronotum* one and a quarter times as broad as long, with anterior margin a little concave, posterior one sinuated; disk almost flat, covered with an abundant, fine pubescence, presenting

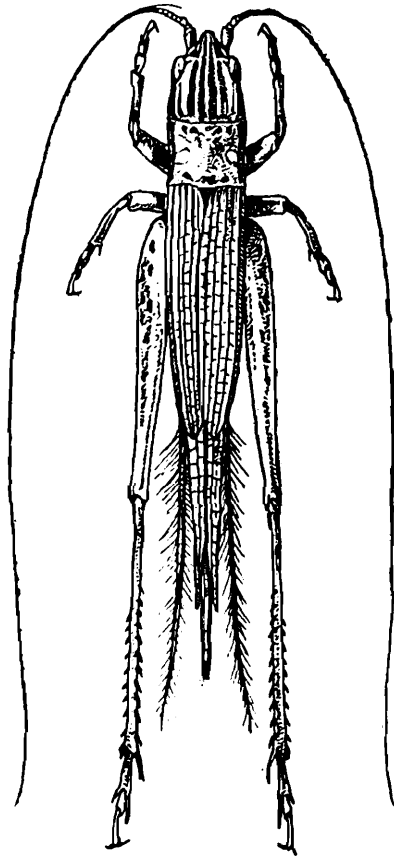


FIG. 284. *Patiscus malayanus* n. sp., ♀ ( $\times 3.2$ ).

five small brown spots along both anterior and posterior margins; lateral lobes much longer than high. *Legs* of the same colour as the body, very pubescent. Anterior and especially median *legs* short; tibiae presenting a small dark spot near the base above, the anterior ones with a large, oval internal tympanum, and a narrow external one. Posterior femora long and narrow; tibiae with a small brown spot near the base, armed with 8 external, 10 internal spines. *Elytra* extending to the apex of abdomen; dorsal field with straight, parallel veins, of which 3 are free and 2 are branches of the cubital; lateral field with parallel, nearly straight veins; *Sc.*

bearing 2 branches, *R* divided. Wings longer than the elytra.

♂: Subgenital plate very long and narrow, presenting two small black spots near the apex. *Genitalia* very long, presenting at apex a deep notch and two long and narrow lobes (fig. 282).

♀: *Ovipositor* wide at base, curved downwards at apex.

*Length* of body 15–16 mm.; post. fem. 9–10.5 mm.; elytra 8.5–10 mm.; *ovipositor* 8.5 mm.

This species is very close to *P. dorsalis* Stål, from the Philippine Islands; it is not so uniformly coloured and differs in the shape of the *genitalia* which are not so deeply notched at apex as in *dorsalis*.

*Range*.—INDIA: Assam: Gauhati; Brahmaputra Riv. (B.M.). MALAYA: Kuala Lumpur (B.M.).

### 348. *Patiscus cephalotes* (Saussure)

1878. *Euscirtus cephalotes* Saussure, *Mém. Soc. Genève*, 25, 628, pl. 19 (LXIX), fig. 2.

♀: *Size* rather large, slender. *Colour* testaceous with a brown lateral band. *Head* wider than the pronotum, flattened above; frontal rostrum rather long, with parallel margins. Eyes feebly protruding, horizontally lengthened. *Pronotum* square, with sinuated posterior margin; lateral lobes longer than high, with inferior margin ascending posteriorly, adorned with a brown band in continuation of a band of the same colour on the head behind the eyes. Posterior femora rather slender; tibiae armed with 8 external, 10 internal spines; all the tibiae present a small brown spot near the base. *Elytra* covering only half of the abdomen; dorsal field with 5 straight veins; veinlets forming square areolae; lateral field with a brown band, presenting 5 veins. Wings a little shorter than the elytra. *Ovipositor* sinuated.

♂: Tenth abdominal tergite with posterior margin straight, rounded angles; epiproct very narrow, deeply furrowed; subgenital plate very long and narrow; *genitalia* very close to those of *necydaloïdes*, with more parallel margins.

*Length* of body ♂ 15 mm., ♀ 17 mm.; pronot. 2.5 mm.; post. fem. ♂ 10 mm., ♀ 10.6 mm.; elytra ♂ 4.5 mm., ♀ 6.5 mm.; *ovipositor* 9 mm.

*Range*.—INDIA: Sikkim (type, G.M.). Assam: Ledo (Phil. M.).

**349. *Patiscus quadripunctatus* Bolivar**

1900. *Patiscus quadripunctatus* Bolivar, *Ann. Soc. ent. Fr.*, 68 (1899), 806. Chopard, 1936, *Ceyl. J. Sc.*, (B) 20, 85. Sandrasagara, 1954, *J. Bombay nat. Hist. Soc.*, 52, 562.

Slender, pale testaceous. *Head* long, flattened above, light brown with 3 narrow yellowish bands near the middle; a rather wide brown band behind each eye; frontal rostrum very narrow, with parallel margins, as long as the first antennal joint. *Pronotum* nearly as long as wide, with anterior margin feebly concave, posterior one a little sinuated; disk almost flat, light brown with a fine yellowish median line and four blackish points in the angles; lateral lobes long, with rounded anterior angle, presenting a broad brown longitudinal band. *Abdomen* yellowish with a feeble brownish median band. Subgenital plate of the male very long, narrowing towards the apex which is feebly rounded. Anterior and median *legs* short; anterior tibiae with two oval tympana. Posterior femora long and rather narrow; tibiae armed with 7–8 external, 11–12 internal spines. *Elytra* extending to the apex of the 5th abdominal tergite; dorsal field presenting 5 straight, parallel veins; lateral field brown. Wings as long as the elytra in the male, a little shorter in the female. Genitalia of the same type as those of *malayanus*, with longer and narrower apical lobes. *Ovipositor* of the female almost straight, feebly curved downwards towards the apex.

*Length* of body 12 mm.; pronot. ♂ 1.6 mm., ♀ 2.2 mm.; post. fem. 8–9 mm.; elytra 6.5 mm.; ovipositor 10.5 mm.

*Range*.—INDIA: Travancore (Kerala). Madras: Kodaikanal (type, Pantel's coll., P.M.). CEYLON: Haputale (Col. M.).

**350. *Patiscus brevipennis* n. sp.**

*Holotype*: Malaya, West Coast: Langkawi Island (H. M. Pendlebury), ♀ (Paris Museum).

General shape shorter and somewhat broader than the other species of the genus. *Colour* yellowish-brown with a broad, lateral, blackish band. *Head* rather short, a little convex above, presenting 6 narrow brown lines; frontal rostrum nearly as broad as the first antennal joint; cheeks presenting a broad brown band behind the eye. Eyes feebly elongated. *Pronotum* transverse, with feebly concave anterior margin, posterior one a little sinuated, both lined with long hairs; disk flat, presenting two rather large brown spots

near the anterior margin, and four small spots near the angles; lateral lobes a little longer than high, with inferior margin feebly ascending posteriorly, adorned with a brown band in continuation of that of the head. *Abdomen* presenting two wide brown bands on the sides. *Cerci* very long, dark brown. *Legs* short, of the same colour as the body; anterior tibiae presenting a large internal tympanum and a smaller external one. Posterior femora rather short and rather strongly dilated at base; tibiae armed with 7-9 external, 9 internal spines, their margins denticulated. *Elytra* extending to the apex of the third abdominal tergite, with oblique internal margin; dorsal field very light brown, translucent, presenting 5 veins, the first two of which are united at base (*Cu.* and *Cup.*); these veins are quite straight and parallel, equidistant; transverse veinlets rather scarce, forming long areolae; lateral field presenting a wide brown band, with 4 straight veins and the *Sc.* divided near the apex. Wings quite abortive. *Ovipositor* flattened, feebly sinuated, with apex curved downwards.

*Length* of body 12 mm.; pronot. 2 mm.; post. fem. 9 mm.; elytra 4 mm.; ovipositor 7.5 mm.

Differs from all the other species of *Patiscus* by its broader shape and its shorter head and posterior legs, which remind one of *Euscyrtus*; but the elytral venation is definitely that of *Patiscus*.

*Range*.—INDIA: Assam: Ledo (Phil. M.). UPPER BURMA: Myitkyina (Phil. M.).

The following species described by Fernando, W (1957a, b, c) could not be included in the main text.

#### ADDENDA

351. *Nemobiodes modderi*, Fernando, *Ceyl. J of Sc.* (n.s.), I, 1957a, p. 13, figs. 31 and 32.

Female: Apterous; dark brown. *Head* as wide as pronotum, black shining. Face rufous. Maxillary palps testaceous, darkened at apex; 4th joint shorter than 3rd; 5th joint rounded at apex. Antennae brown, light brown at base. Eyes rounded, projecting strongly. Ocelli yellow, triangularly placed.

*Pronotum* transverse, with two large, brown impressions, with black border in front of each; blackish spots on disc; lateral margins of disc yellowish; middle of disc dark brown with rufous; anterior margin slightly concave; posterior margin concave, lined with long bristles; sides convex; lateral lobes black with inferior margin slightly ascending backwards; anterior and posterior angles black; mesonotum almost blackish like lateral lobe of pronotum; metanotum brown with black spots.

*Abdomen* brown, pubescent.

*Ovipositor* slender with apical valves lanceolate; superior ones with eight small denticles.

*Legs* concolorous; anterior and median tibiae pubescent and furnished with blackish bristles; posterior femora thick with brown bands at their external surface; posterior tibiae with five spines on each margin, 1st small, rest progressively lengthening; 5th largest; external spurs long and strong; superior one equalling last spine; inferior a little longer; median spur large and about twice superior; infero-internal spur shorter than external one; median spur longest, being longer than superior; pubescent; posterior metatarsus large with seven denticles on outer margin and eight denticles on inner margin.

Length of body 9.6 mm.; length of pronotum 2 mm.; posterior femur 6 mm.; ovipositor 5 mm.

*Locality*: Colombo; one female collected on 15.VII.57 (J.M.P.M.).

I name this specimen *Nemobiodes modderi* after the young collector Jan Michael Paul Modder of Barnes Place, Colombo.

This new species closely resembles *Nemobiodes laeviceps* Chopard, but differs in the shape and colouration of the



pronotum, the number of denticles in the posterior metatarsus and in the size of the ovipositor and the number of denticles in the superior apical valves.

352. *Landreva zola* Fernando, *Ceyl. J. Sc.* (n.s.), I, 1957a, p. 14; figs. 33 and 34.

Female: Robust. Colour creamish above.

*Head* a little wider than pronotum; frontal rostrum short, squarish, as broad as 1st antennal joint; palpi greyish; 5th joint of maxillary palps triangular; antennae long and slender; eyes yellowish; head dark brown with a fine white line at vertex, bounded by two black lines which meet at frontal rostrum which is black; lateral margin of head mottled with creamish spots.

*Pronotum* transverse, broadest in middle; dark brown at sides with three brown stripes dorsally; mesonotum with two light brown patches in middle and sides.

*Elytra* very small, lateral, somewhat triangular, pubescent; no veins visible.

*Legs* strong, mottled creamish and grey; anterior tibiae without tympanum; posterior femora swollen; creamish with brown striations; posterior tibiae armed with four spines on each margin and 12 denticles at base of external margin and 11 denticles on internal margin; supero-external spur slightly longer than last spine; intermediate spur longest; infero-external spur longer than supero-external spur; supero-internal spur as long as intermediate spur, infero-internal spur short, and shorter than last spine; intermediate and inferior spurs pubescent; posterior metatarsus long, armed with two apical spurs, of which the internal is longer than the external and with 5 denticles on each margin.

*Abdomen* dark brown laterally; two symmetrically arranged dark brown patches along the middle of the abdomen; apex of abdomen black; cerci long.

*Ovipositor* straight, shorter than cerci.

Length of body 17 mm.; length of pronotum 2 mm.; breadth of pronotum 4 mm.; posterior femora 10 mm.; posterior tibia 6 mm.; ovipositor 5 mm.

*Locality*: Buldala (S.P.); one female collected by Wilfred Fernando, Jr.

*Landreva zola* is close to *L. clara* but differs from it in the shorter elytra and the short ovipositor.

353. *Landreva kuveni* Fernando, *Ceyl. J. Sc.* (n.s.), I, 1957b, p. 74, figs. 3 and 4.

Female: Robust; colour dark brown, almost blackish above.

*Head* a little wider than pronotum; frontal rostrum short, squarish, a little broader than 1st antennal joint; palpi greyish; 5th joint of maxillary palps triangular with rounded apex; antennae long and slender; eyes brownish; head dark brown, almost blackish; frontal rostrum and anterior margin behind eyes black.

*Pronotum* transverse; broadest in middle, blackish at sides with two brownish transverse stripes alternating with light brown; mesonotum dark brown with black sides and two black discs in middle; metanotum black with dark brown line in middle.

*Elytra* extremely minute.

*Legs* strong; yellow with brown stripes; anterior tibia without tympanum; posterior femora swollen, yellow with brown striations; posterior tibiae armed with three spines on each margin; with 10 denticles at base of external margin and of which the fifth is extremely minute; 10 denticles on internal margin; supero-external spur shorter than last spine; intermediate spur equal to supero-external; infero-external longer than both; supero-internal spur as long as last spine; intermediate spur and infero-internal spur of equal length but longer than supero-internal; spurs not pubescent; posterior metatarsus long, armed with two apical spurs of which the internal is longer than the external and with five denticles on each margin.

*Abdomen* dark brown; blackish on sides and middle; apex of abdomen black; cerci long.

*Ovipositor* straight, shorter than the cerci.

Length of body 14 mm.; length of pronotum 2 mm.; breadth of pronotum 4 mm.; posterior femora 8.5 mm.; posterior tibia 5.5 mm.; ovipositor 3.5 mm.

*Locality*: Ettiliwewa (Wellawaya division); one female.

*Landreva keveni* resembles *L. zola* but differs in colouration; in the number of denticles in the tibia; in the spurs and in its extremely minute elytra; it is slightly smaller and very much darker than *L. zola*.

354. *Derectaotus prometheus* Fernando, *Ceyl. J. Sc.* (n.s.), I, 1957b, pp. 75, figs. 5 and 6.

Male: Very small. Colour rufous brown, covered with brown scales.

*Head* as wide as pronotum; frontal rostrum very wide, with a median furrow; frontal protuberance rather strongly projecting; face brown; palpi testaceous; maxillary palps with 4th joint equal to 3rd; 5th smaller than 3rd and 4th, broadened at apex; antennae very slender, brown with yellowish rings.

*Pronotum* with concave disc; posterior margin prolonged posteriorly, with rounded margin; lateral lobes of same colour as disc; tegmina slightly exposed ventro-laterally.

*Legs* short; anterior and middle femora covered with blackish and brownish scales; tibiae dark brown; tarsi yellowish; anterior tibiae with small rounded tympanum in the internal face; metatarsus longer than the other two joints; posterior femora thick, brownish yellow; tibiae serrulated with supero-external spur shorter than inferior; median a little longer than inferior; supero-internal spur short, equal to supero-external; infero-internal slightly longer; median about one and half times longer than infero-internal.

*Abdomen* brown; covered dorsally with brown scales uniformly; light brown ventrally; last tergite short, rounded; subgenital plate large, with a very short process extending slightly beyond the apex of the subgenital plate.

Length of body 4.3 mm.; length of pronotum 2.0 mm.; length of posterior femur 2.2 mm.

*Locality*: Migaswena, off Tanamalwila, Wellawaya division; one male.

*Derectaotus prometheus* differs from the other species of the genus in its size, colouration, palps, spurs and the ventro-laterally exposed tegmina.

355. *Ectatoderus sandarsagarai*, Fernando, *Ceyl. J. of Sc. (B)*, XXV, 1957c, p. 201, pl. XLI, figs. 1-3.

This new species of *Ectatoderus*, belonging to the subfamily Mogoplistinae of the family Gryllidae, was collected near Rukam Tank (Eastern Province) on 20th August, 1955.

Male: Small. *Colour* blackish and covered with black scales.

*Head* rounded, slightly narrower than pronotum. Frontal rostrum very wide and a well-developed median furrow. Frontal protuberance strongly projecting. Face and palpi brown. Antennae brown, not specially slender. Maxillary palpi brown with whitish rings; 4th joint shorter than 3rd, 5th joint longer than 3rd, and broadest in middle.

*Pronotum* extending very far backwards and narrowing anteriorly to form a neck; longer than wide; anterior margin concave, posterior margin strongly convex; lateral lobes black.

Tegmina membranous and small parts of posterior portions exposed.

*Abdomen* blackish and covered with black scales; last abdominal tergite short and notched in middle. Subgenital plate large and somewhat triangular in shape. Anal valves

black, lateral process of inferior one short, but not diverging. Cerci black.

*Legs* short; anterior and middle femora covered with black scales; tibiae blackish; anterior tibiae tympanated; tarsi short; metatarsus longer than the other two joints. Posterior femora thick, black; tibiae serrulated, with superior and inferior external spurs short; median spur twice as long; supero-internal and median spur of equal length; infero-internal spur long; metatarsi long, margins serrulated, black with yellowish tip; 2nd joint very short; 3rd joint slender, yellowish.

Length of body 4.7 mm.; length of head 1.0 mm.; length of pronotum 2.0 mm.; posterior femur 2.1 mm.; posterior tibia 1.2 mm.

*Locality*: Rukam Tank (Eastern Province); 4 specimens.

The species described in this paper differs from the other species of the genus in size, general colouration, the elytra being not fully covered by the pronotum and in the maxillary palps. In certain respects it appears to resemble a *Derec-taotus* but the shape of the pronotum separates it from the latter genus.



## BIBLIOGRAPHY

- AGASSIZ, J. L. R., 1842-43. *Nomenclator Zoologicus, cont. nomina systematica generum animalium tam viventium quam fossilium. Fasc. IV.*
- ANNANDALE, N., 1906. Notes on the fauna of a desert tract in southern India, Part II. Insects and Arachnida. *Mem. As. Soc. Bengal*, 1, pp. 203-219.
- BANERJEE, S. N., and CHATTERJEE, B. K., 1955. Studies on *Gryllo-talpa africana* Palisot de Beauvois, a new major pest of the potato crop (*Solanum tuberosum* Linn.) and its control. *Ind. J. Ent.*, New Delhi, 17, pp. 219-229.
- BERTHOLD, A. A., 1827. Latreille's natürliche Familien des Thierreichs. Weimar, Industr. Compt., 602 pp.
- BOLIVAR, I., 1890. Ortópteros de Africa del Museo de Lisboa. *Jorn. Sci. Lisboa*, (2) 1, pp. 150-232, 1 pl.
- BOLIVAR, I., 1900. Les Orthoptères de St. Joseph's College à Trichinopoly (Sud de l'Inde), 2e Partie. *Ann. Soc. ent. Fr.*, 68, 1899, pp. 761-810, pls. 11-12.
- BOLIVAR, I., 1901. Zoologische Ergebnisse der dritten Asiatischen Forschungsreise des Grafen Eugen Zichy. Orthoptera, pp. 223-243.
- BOLIVAR, I., 1912. Orthoptera Acrydiidae, Phasgonuridae, Gryllidae of the Seychelles. *Trans. Linn. Soc. London*, 15, pp. 263-292.
- BOLIVAR, I., 1922. Voyage de M. le baron Maurice de Rothschild en Ethiopie et en Afrique Orientale anglaise (1904-1905). Résultats scientifiques, Animaux articulés. Orthopteres, pp. 169-219, pls. 10<sup>1</sup>-10<sup>4</sup>. Paris, Imprimerie Nationale.
- BOLIVAR, I., 1927. Un nuevo Grilido de Persia. *Eos*, 3, pp. 247-249.
- BRUNNER v. WATTENWYL, C., 1893. Revision du système des Orthoptères et description des espèces rapportées par M. Leonardo Fea de Birmanie. *Ann. Mus. civ. St. nat. Genova*, 13, pp. 1-230, pls. 1-6.
- BURMEISTER, H. C., 1838. Handbuch der Entomologie. Zweiter Band, zweite Abtheilung, Kaukerke, Gymnognatha. Berlin, Th. Ch. F. Enslin, pp. 397-756.
- CAUDELL, A. N., 1927. On a collection of Orthopteroid insects from Java made by Owen Bryant and William Palmer. *Proc. U.S. Nat. Mus.*, 71, pp. 1-42.
- CHATTERJEE, R. N., 1955. Ecology and control of the cricket *Gymnogryllus humeralis* Walker (Orthoptera, Gryllidae), a minor pest of *Casuarina equisetifolia* Forst. seedlings in Bombay State, with a list of other pests of *Casuarina*. *Ind. Forest. Rec.*, Dehra Dun, 81, pp. 509-511.
- CHOPARD, L., 1918. Etude des Gryllides du Museo civico di Storia naturale di Genova. *Ann. Soc. ent. Fr.*, 86 (1917), pp. 509-574.
- CHOPARD, L., 1924a. Note sur quelques Orthoptères cavernicoles de Sumatra et de Java. *Ann. Soc. ent. Fr.*, 93, pp. 189-192.
- CHOPARD, L., 1924b. On some cavernicolous Orthoptera and Dermaptera from Assam and Burma. *Rec. Ind. Mus.*, 26, pp. 81-92, pls. 4-5.

- CHOPARD, L., 1924c. The fauna of an Island in the Chilka Lake. The Dermaptera and Orthoptera of Barkuda Island. *Rec. Ind. Mus.*, 26, pp. 165-191.
- CHOPARD, L., 1925a. Descriptions de Gryllides nouveaux. *Ann. Soc. ent. Fr.*, 94, pp. 291-332.
- CHOPARD, L., 1925b. The Gryllidae of Ceylon in the British Museum collections. *Ann. Mag. nat. Hist.*, (9) 15, pp. 505-536.
- CHOPARD, L., 1925c. Descriptions de Gryllides nouveaux de Java. *Treubia*, 6, p. 151, fig. 11.
- CHOPARD, L., 1925d. Results of Dr. E. Mjöberg's Swedish Sci. Expedition to Australia (1910-1913). *Ark. Zool.*, 18 A, No. 6, p. 34.
- CHOPARD, L., 1927. Descriptions de Gryllides nouveaux. *Ann. Soc. ent. Fr.*, 96, pp. 147-174.
- CHOPARD, L., 1928a. Revision of the Indian Gryllidae. *Rec. Ind. Mus.*, 30, pp. 1-36.
- CHOPARD, L., 1928b. Additional notes on the Gryllidae of Ceylon. *Spol. Zeyl.*, 14, pp. 197-208, pls. 13-16.
- CHOPARD, L., 1929a. Fauna of the Batu Caves, Selangor. 12. Orthoptera and Dermaptera. *J.F.M.S. Mus.*, 14, pp. 366-371.
- CHOPARD, L., 1929b. Spolia Mentawiensia. Gryllidae. *Bull. Raffles Mus.*, No. 2, pp. 98-118.
- CHOPARD, L., 1930. The Gryllidae of Sarawak. *Sarawak Mus. J.*, 4, pp. 1-42, pls. 1-8.
- CHOPARD, L., 1931a. On Gryllidae from the Malay Peninsula. *Bull. Raffles Mus.*, No. 6, pp. 124-149.
- CHOPARD, L., 1931b. Dr. E. Mjöberg's zoological collections from Sumatra. 12. Gryllidae. *Ark. f. Zool.*, 23 A, No. 9, pp. 1-17.
- CHOPARD, L., 1933a. New species of Indian Gryllidae (Orth.). *Stylops*, 11, pp. 115-120.
- CHOPARD, L., 1933b. Gryllidae de l'Inde meridionale. *Rev. Suisse Zool.*, 40, pp. 161-167.
- CHOPARD, L., 1935. On a collection of Gryllidae from India made by Mr. B. M. Fletcher. *Ann. Mag. nat. Hist.*, (10) 16, pp. 284-296.
- CHOPARD, L., 1936. The Tridactylidae and Gryllidae of Ceylon. *Ceylon. J. Sc.*, B 20, pp. 9-87.
- CHOPARD, L., 1941. Results of the Oxford Univ. Exped. to Sarawak (Borneo), (1932). Gryllacridae and Gryllidae. *Ent. m. Mag.*, 76, pp. 189-224.
- CHOPARD, L., 1951. A revision of the Australian Grylloidea. *Rec. S. Austl. Mus., Adelaide*, 9, pp. 397-533, 89 figs.
- CHOPARD, L., and CHATTERJEE, N. C., 1937. Entomological investigations on the spike disease of Sandal. 31. Dermaptera and Orthoptera. *Ind. For. Rec.*, 3, pp. 1-30.
- COSTA, O. G., 1836. Fauna del Regno di Napoli, Ortotteri.
- DE GEER, CARL, 1773. Memoires pour servir à l'histoire des Insectes, Stockholm, vol. 3, pp. 696, 44 pls.
- FABRICIUS, J. CHR., 1775. Systema Entomologiae. Leipzig, Korte, pp 832.
- FERNANDO, W., 1957a. New species of Insects from Ceylon (1). *Ceylon J. Sci. (Biol. Sc.)*, I, pp. 7-18, pls. 1-9.
- FERNANDO, W., 1957b. New species of Insects from Ceylon (2). *Ceylon J. Sci. (Biol. Sc.)*, I, pp. 73-76, pls. 15-16.
- FERNANDO, W., 1957c. Contributions to a knowledge of the insects of Ceylon. 2. *Ectatoderus sandasagarai* sp. nov. *Ceylon J. Sci.*, (B) 25, p. 201.

- GHOURI, A. S. K., and MCFARLANE, J. E., 1958. Occurrence of a macropterous form of *Grylloides sigillatus* (Walker) (Orthoptera Gryllidae) in laboratory culture. *Can. J. Zool.*, pp. 837-838, 1 pl.
- GIEBEL, CHR. G., 1870. Description of *Gryllotalpa siamensis*. *Ztschr. f. die gesamt. Naturwiss.*, 35, pp. 48.
- GUÉRIN-MÉNEVILLE, F. E., 1833. Insects, in Voyage aux Indes Orientales par C. Belanger. *Zoologie*, pp. 441-512, 5 pls.
- GUÉRIN-MÉNEVILLE, F. E., 1844. Iconographie du Règne animal de G. Cuvier. Paris, J. B. Baillière, 1829-1844.
- GUÉRIN-MÉNEVILLE, F. E., 1845-1850. Voyage en Abyssinie exécuté pendant les années 1839-1843 (par M. Lefèvre). Paris, Bertrand, pp. 239-390, 12 pls.
- HAAN, W. DE, 1842. Bijdragen tot de Kentnis der Orthoptera, 1842-44, pp. 45-248, pls. 11-23.
- Hebard, M., 1926. Dermaptera and Orthoptera: In Insects of Hawaii, Johnston Island and Wake Island, by E. A. Bryan (Jr.) et al. *Bull. Bishop Mus.*, 31, pp. 82-88.
- JACOBSON, G. G., and BIANCHI, V. L., 1905. *Orthoptères et Névroptères de l'Empire russe et des régions voisines*. Saint-Petersbourg, 10, 952 pp., 25 pls.
- JONES, S., and CHOPARD, L., 1936. On an interesting new genus of Gryllid from India. *Ann. Mag. nat. Hist.*, (10) 18, pp. 234-238.
- KARNY, H., 1909. Ost-afrikanische Orthopteren Sammelausbeute von A. Borgert (1904-1905). *Zool. Jahrb., Syst.*, 27, pp. 477-480.
- KHAN, N. H., 1954. Ecological observations on the eggs of *Grylloides sigillatus* (Walker). *Ind. J. Ent.*, New Delhi, 16, pp. 24-26.
- LATIF, A., and ASGHAR, M. A., 1957. Two new species of Gryllidae. *Proc. 8th Pak. Sci. Con.*, 1956, pt. 3, Sec. Biol., 69 pp.
- LATREILLE, P. A., 1829. Insectes dans Le Règne animal de Cuvier, vol. 3, pp. 1-329. Paris, Masson.
- LE GUILLOU, E. J. F., 1841. Description des Orthoptères nouveaux recueillis pendant son voyage de circumnavigation sur la corvette Zélée. *Rév. Zool. (Paris)*, 4, pp. 292-295.
- LICHTENSTEIN, A. H., 1796. Catalogus Musei Zoologici ditissimi Hamburgi 3 Febr. 1796 auctionis lege distrahendi, Sectio tertia. Insecta.
- LINNE, CARL., 1758. Systema Naturae per Regna tria Naturae, tomæ I, éd. 10.
- PANTEL, J., 1896. Notes: Orthopterologiques. *Ann. Soc. esp. Hist. nat.*, 25, pp. 47-118.
- RAMBUR, J. PIERRE., 1839. Faune entomologique de l'Andalousie. II. Dermaptères et Orthoptères, pp. 1-94, pls. 1-6.
- REHN, J. A. G., 1903. Description of a new genus of Gryllidae with a note on the genus *Aphonogryllus*. *Ent. News*, 14, pp. 258-260.
- SANDRASAGARA, T. R., 1954. Checklist of the Tridactylidae and Gryllidae (Insecta, Orthoptera) of Ceylon, with records of distribution. *J. Bombay nat. Hist. Soc.*, 52, pp. 540-562.
- SAUSSURE, HENRI DE, 1874. Mission scientifique au Mexique et dans l'Amérique centrale. Recherches zoologiques. Insectes Orthoptères. Paris. Imprimerie Impériale.



- SAUSSURE, HENRI DE, 1877. *Mélanges Orthoptérologiques*. Ve fascicule. Gryllidae. *Mém. Soc. Genève*, 25, pp. 1-352, pls. 11-15.
- SAUSSURE, HENRI DE, 1878. *Mélanges Orthoptérologiques*. VIe fascicule. Gryllides (2e partie). *Mém. Soc. Genève*, 25, pp. 369-702, pls. 16-19.
- SCHIMMER, F., 1911. *Mymecophila Escherichi*, eine neue termitophile Ameisengrille, in Escherich Termitenleben aus Ceylon. Iena, G. Fischer, pp. 233-235.
- SCUDDER, S. H., 1869. Revision of the large stylated fossorial crickets. *Mem. Peabody Academy of Sc.*, first Mem. Salem, 1-28 pp., 1 pl.
- SERVILLE, M. AUDINET, 1831. *Revue méthodique des Orthoptères*. *Ann. Sc. nat.*, 22, p. 1-262.
- SERVILLE, M. AUDINET, 1839. *Histoire naturelle des Insectes*. Orthoptères. Paris, Roret, 776 pp., 14 pls.
- SHIRAKI, T., 1930. Orthoptera of the Japanese Empire. I. Gryllotalpidae and Gryllidae (Insecta Matsumurana), 4, pp. 181-252.
- SJÖSTEDT, Y., 1909-1910. Kilimandjaro-Meru Expedition, vol. 3. Stockholm.
- STÅL, C., 1861. Kongliga Svenska Fregatten Eugénies Resa omkring Jordan under Befäl af C. A. Virgin Åren, 1851-1853. Insekter. Orthoptera Species novas, pp. 299-350, pl. 5.
- STÅL, C., 1877. Orthoptera nova ex insulis Philippinis. *Oefv. Kongl. Vet. Acad. Förh.*, 34, No. 10, pp. 30-58.
- STOLL, CASPAR, 1813. Représentation exactement colorée d'après nature des Spectres ou Phasmes, des Mantes, des Sauterelles, des Grillons, des criquets et des Blattes qui se trouvent dans les quatre parties du Monde, l'Europe, l'Asie, l'Afrique et l'Amérique. Amsterdam, J. C. Sepp et fils, un vol. in 4°, 180 pp., 70 pls.
- TARBINSKY, S. P., 1940. The Saltatorian Orthopterous Insects of the Azerbaidzhan S. S. R. Moscou/Leningrad.
- UVAROV, B. P., 1935. A new name for the genus *Gryllus* auct. nec L. *Ann. Mag. nat. Hist.*, (10) 20, 16, p. 120.
- UVAROV, B. P., 1940. Twenty-eight new generic names in Orthoptera *Ann. Mag. nat. Hist.*, (11) 5, pp. 173-176.
- WALKER, FRANCIS, 1859. Characters of some apparently undescribed Ceylon Insects. *Ann. Mag. Nat. Hist.*, (3) 4, pp. 217-223; Gryllidae, p. 221.
- WALKER, FRANCIS, 1869. Catalogue of the specimens of Dermaptera Saltatoria and supplement to the Blattariae in the collection of the British Museum. London, British Museum, v, suppl. in 8°, p. 223.
- WALKER, FRANCIS, 1871. Supplement to catalogue of Dermaptera Saltatoria. London, British Museum, v, suppl. in 8°, p. 95.

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